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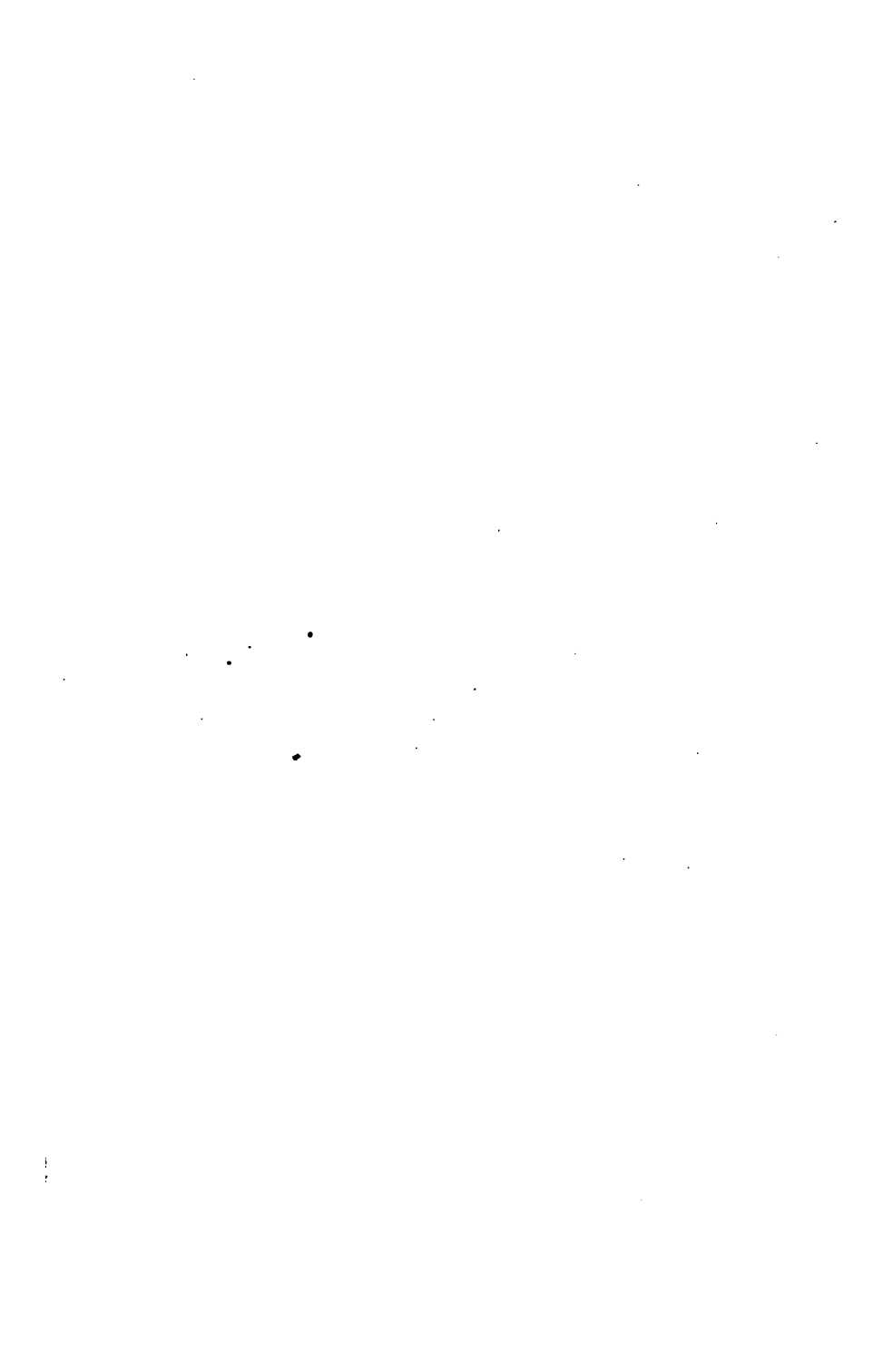
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ARTES SCIENTIA VERITAS



THE
FLORA OF BERKSHIRE

DRUCE

HENRY FROWDE, M.A.
PUBLISHER TO THE UNIVERSITY OF OXFORD



LONDON, EDINBURGH, AND NEW YORK

THE
FLORA OF BERKSHIRE

BEING A
TOPOGRAPHICAL AND HISTORICAL ACCOUNT
OF THE
FLOWERING PLANTS AND FERNS
FOUND IN THE COUNTY

WITH
*SHORT BIOGRAPHICAL NOTICES OF THE BOTANISTS WHO HAVE
CONTRIBUTED TO BERKSHIRE BOTANY DURING
THE LAST THREE CENTURIES*

BY
GEORGE CLARIDGE DRUCE, HON. M.A. OXON.

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CURATOR OF THE FIELDING HERBARIUM
AUTHOR OF
'THE FLORA OF OXFORDSHIRE,' 'THE FLORA OF NORTHAMPTONSHIRE,' ETC.

Oxford
AT THE CLARENDON PRESS
1897



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TO
HER MOST GRACIOUS MAJESTY
QUEEN VICTORIA

THESE INVESTIGATIONS

INTO THE FLORA OF THE ROYAL COUNTY

ARE BY PERMISSION

DEDICATED

AS THE RESPECTFUL TRIBUTE OF A STUDENT TO HIS SOVEREIGN
IN THE SIXTIETH YEAR OF HER BENEFICENT REIGN

MDCCCXCVII

PREFACE

THE kind reception which was given to my *Flora of Oxfordshire*, and the honour which the University of Oxford conferred upon me on the completion of that work, led me, after ascertaining that it was not likely that Mr. James Britten would ever publish the *Flora of Berkshire* which he at one time contemplated, to attempt the compilation of a similar work myself.

The scanty leisure which a business life allows me has for the last ten years been to a great extent occupied in visiting every parish of the beautiful and varied district comprised in the Royal county, and investigating its botany; but it must be borne in mind that however minute and assiduous the research of the botanist in such a case may be, finality can never be attained, since only a small portion comparatively of the actual surface of the ground comes within his observation, and that only for a short time.

I believe, however, that the salient botanical features of the county have been noted, and I hope that the account of the distribution of the commoner plants will be found in the main trustworthy. The plan adopted has been to call a plant generally distributed when I have found it in several places in each of a hundred parishes, and widely distributed when I have noted its occurrence in from sixty to seventy parishes. This has enabled me to save space by refraining from giving lists of localities for the commoner species. In other instances a selection of localities only is given, and a complete list only of the less common plants;

but for these usually no precise locality is given, in order to avoid the destruction of the rarer species.

Besides giving the distribution of plants through Berkshire, I have endeavoured to recount the history of their discovery in the county; for this purpose I have made an arduous search through botanical literature since the publication of Turner's *Herbal* in 1551. The great public Herbaria of the British Museum at South Kensington, the Oxford University Herbarium, and that of Sir James E. Smith in the custody of the Linnean Society, have been examined, and much information has been obtained from MSS. in the British Museum, the Bodleian, in the Library of Magdalen College, Oxford, and in that of the Oxford Botanic Garden. To the keepers of the above institutions, especially to Professor Vines, I am indebted for the requisite permission to examine their treasures. To my friend Mr. Garnsey, of Magdalen College, Oxford, I cannot sufficiently express my sense of indebtedness for the immense help and almost unceasing assistance he has given me in revising my MS. and examining the proofs. My friend Mr. F. Tufnail, of Reading, has also been most kind and painstaking in reading the MS. and proof-sheets, in preparing lists of plants seen about Reading and Mortimer, and in generously giving critical advice and assistance. Mr. W. A. Clarke and Mr. F. T. Richards have also assisted in reading some portions of the proof-sheets. The late Professor A. H. Green, whose premature death we have such reason to deplore, kindly revised my sketch of the geology of the county, and Mr. Stone, the late Radcliffe Observer, gave me the figures used in the compilation of the meteorological tables.

For assistance in examining critical species I am indebted to M. Crépin of Brussels, Dr. Focke of Bremen, Professor Hackel of St. Poelton, Dr. Lange of Copenhagen, Dr. R. von Wettstein and Professor A. Kerner von Marilaun of Vienna, Herr Freyn of Prague, Professor Ascherson of Berlin, the Abbé Strail of Fonds de Forêt, Belgium, the late M. Alphonse de Candolle of Geneva, Professor Engler of Breslau, Professor Greene of Washington,

Professor Haussknecht of Weimar, the Rev. W. M. Rogers, the Rev. E. F. Linton, the Rev. E. S. Marshall, Messrs. F. J. Hanbury, A. Fryer, H. G. and J. Groves, Arthur Bennett, &c.

I am under great obligation to the Delegates of the Clarendon Press for kindly undertaking the publication of this work, and to their compositors and readers, who have done their respective work in so excellent a manner.

At the completion of the book, which has been perhaps unduly delayed, I leave the investigation of the county flora with considerable reluctance, since the field work especially has been of a very pleasant nature, having conducted me into healthy and charming scenery, and gained for me many agreeable and valued friendships. I sincerely trust that the work, notwithstanding its avowed imperfections, may be deemed worthy to take its place in the list of county floras, and that the mistakes which, in an undertaking of this kind, seem bound to occur, may not be so numerous or so grave in character as to materially mar its efficiency.

I can only hope that the cloud which now rests upon systematic botany in Britain may soon be dispelled, and if this work should be the means of adding a single one to the list of those who seek delight in the investigation of nature, my labours, and they have not been slight, will be amply rewarded.

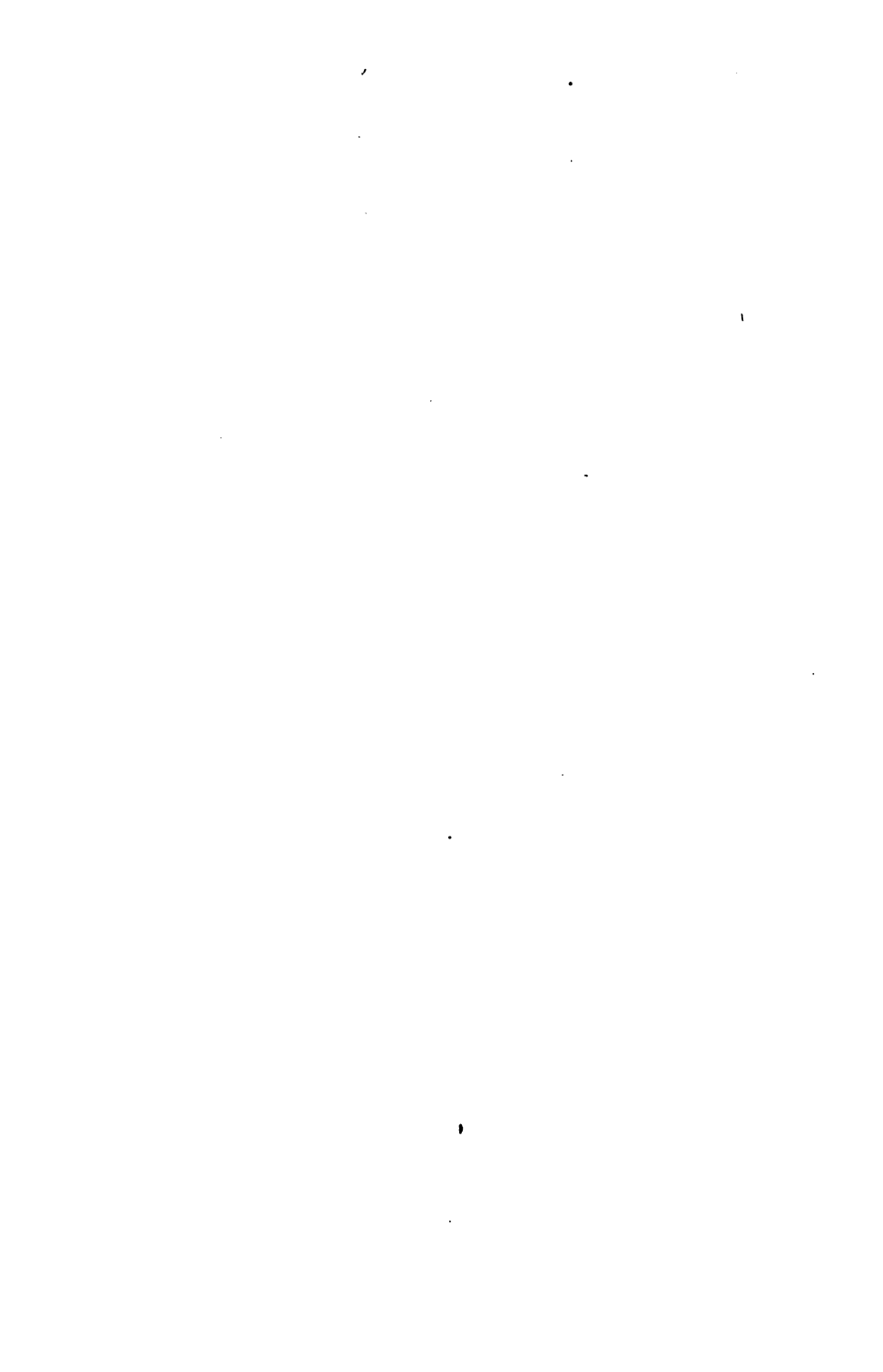
GEORGE CLARIDGE DRUCE.

LAWERS, PERTSHIRE,
Aug. 10, 1897.

Additional notes to the County Flora will always be welcomed. They may be sent to the Author, 118 High Street, Oxford.

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ADDITIONS AND CORRECTIONS

Page clv, l. 5, for T. read J.

- „ cxl, l. 5, for Filiaceae read Tiliaceae.
- „ cxlvii, l. 3. Insert 'Samuel Rudge was born at Thornhaugh in Northamptonshire in 1728, and was High Sheriff of that county in 1792. He lived at Elstree, Herts, for 38 years. Studied botany from 1750. He died at Watlington, Oxfordshire, in 1817.' I am indebted to Messrs. Britten and Boulger for this note, which they have copied from their MS. of the new edition of the 'Biographical Index of British and Irish Botanists.'
- „ clxxx, l. 25, delete *Vicia gracilis*.
- „ cxcii, l. 38. Insert Britten and Boulger. Biographical Index of British and Irish Botanists in Journ. of Botany.
- „ cxcix. To the list of Buckinghamshire plants observed by me may be added *Juncus diffusus* and *Nitella flexilis*.
- „ 82, l. 33, under *Dianthus deltoides*, insert 'Near Carswell in a rough sandy pasture, probably native, Miss M. Nevins,' thus removing the doubt as to its being a Berkshire plant.
- „ 123, l. 13, under *Impatiens Noli-tangere*, insert 'By a stream near Binfield, The Lord Bishop of Reading.' In this locality it is probably an escape from cultivation.
- „ 151, l. 6 from bottom, under *Vicia gracilis*, note that I have now seen the specimen in Mr. Boswell's herbarium labelled *V. gracilis*, and find it to be (as I suspected) *V. gemella*, var. *tenuissima*.
- „ 234, l. 27. A slightly earlier record for *Smyrniun* by Blackstone will be found in his *Fasciculus* of 1737.
- „ 236, l. 20. Insert 5. Loddon. On Waycock Field near Hare Hatch, Hearne MS., as pointed out to me by Mr. D. W. Rannie.
- „ 516, l. 2, add 'Wootton bog, Herb. Boswell.'
- „ 516, l. 12, put ? to *P. fluitans*, as Mr. A. Fryer now tells me he does not think the Berkshire plant should be called by that name. As I stated, I believe the plant to be a hybrid either of *P. natans* or *P. polygonifolius* with *P. alpinus*. Mr. Fryer thinks it to be a form of *P. polygonifolius*.

FLORA OF BERKSHIRE

INTRODUCTION.

TOPOGRAPHY.

BERKSHIRE, or, as it is frequently called, Berks, is a southern inland county lying between $51^{\circ}-20'$ and $51^{\circ}-48'$ north latitude and between $35'$ and $1^{\circ}-43'$ west longitude. The name, according to Camden, was given from a 'stripped or bark-bare oak,' used as a signal-place to which the people repaired in time of trouble to make their general defence. Asser Menevensis, according to Lysons in the *Magna Britannia*, says that it was derived from a wood called Barroc, in which Box-trees abounded, but this view does not appear to have any good foundation. A Barroc Wood is mentioned in a charter of King John quoted in Dugdale's *Monasticon*, and the other estates mentioned in the charter are situated between Wantage and Lambourn. Maps of no very distant date show a Berrie Wood in the neighbourhood of Wokingham. By some writers the name is supposed to come from 'Beorce,' the Beech, by others from the Bibroci, the tribe inhabiting West Berkshire.

In Saxon times the county was known as Berroc-scyre. By the Latin authors it was called Bercheria. After the Danish conquest it was known as Barcssyre. The county is of a very irregular shape. Fuller, writing about it in *The Worthies* (published in 1662), says 'it may be fancied . . . like a lute lying along, whose belly is towards the west, whilst the narrow neck or long handle is towards the east.' On the north it is bounded by Oxfordshire, on the east by the same county and Buckinghamshire, on the south-east and south by Surrey and Hampshire, and on the west by Wiltshire and Gloucestershire. These boundaries will be fully described later on.

Various statements have been made as to the superficial area: in Rocque's *Map of Berkshire*, published in 1761, the county is said to contain 438,977 acres. Dr. Beeke, a botanist referred to in the *Botanologia*, writing about the year 1790, estimated the number of acres at 464,500. The Report published by the House of Lords in 1805 gave the area at 744 statute miles or 476,160 acres, but Arrowsmith

says 758 square miles or 485,120 acres. These varying estimates may perhaps be caused by the insulated portions which belong to Wiltshire having in some cases been included in the Berkshire acreage. The estimate of 450,132 acres is obtained from the *Encyclopædia Britannica* of 1875. Johnston, in the *Dictionary of Geography* of 1877, gives the area as 703 square miles, equal to 450,132 acres, while the *Agricultural Returns* for 1891 and 1892 make the total number of acres to be 462,503.

There are twenty-eight counties of England larger than Berkshire. The counties of about the same size are Oxfordshire, Bucks, Surrey, Worcestershire, and Westmoreland. The county contains a Royal Castle, which has for centuries been the home of our English monarchs; and six municipal boroughs are still included in its bounds, as well as nineteen hundreds and about 180 parishes.

In Mavor's *General View of the Agriculture of Berkshire* of 1809, Dr. Beeke, the Rector of Upton, is quoted for the following figures as to the manner in which the acreage is made up:—

Arable land	about 255,000 acres
Meadow and dairy land in the vale	72,000 "
Sheep-walks, chiefly uninclosed, on the chalk-hills	25,000 "
Other dry pastures, parks, &c.	25,000 "
Wastes, chiefly barren heaths	30,000 "
Woods, copses, &c.	30,000 "
Space occupied by buildings, roads, rivers, &c.	27,500 "

Mr. Pearce's Report, made about the year 1800, gave the following as the distribution of land in the county:—

The inclosed lands, parks, and woods contain	about 170,000 acres
The common fields and downs	220,000 "
The forests, wastes, and commons	40,000 "
Roads	8,977 "

It is only fair to Dr. Mavor to say that he considered the estimate of the common fields to be too much by 30,000 acres.

The *Imperial Gazetteer* gives the following figures:—

Arable ground	260,000 acres
Meadows	76,000 "
Parks and sheep-walks	55,000 "
Wood	30,000 "
Waste	29,000 "

The following figures are obtained from the *Agricultural Reports*:—

Corn-crops—	1891.	1892.	1893.	1894.
Wheat	44,752	44,517	38,496	38,867
Barley	32,548	30,236	31,483	30,499
Oats	30,215	32,326	34,037	37,072
Rye	567	437	1,111	2,841
Beans	7,720	7,157	5,251	5,488
Peas	4,576	4,358	4,952	5,401
Total corn-crops	120,378	119,031	115,330	120,168

Green crops—	1891.	1892.	1893.	1894.
Potatoes	2,211	2,227	2,340	2,107
Turnips	27,827	28,140	28,173	27,319
Mangold	5,822	6,009	6,004	5,745
Cabbage, Kohl Rabi, and Rape	2,531	2,378	2,468	2,998
Vetches	10,475	9,567	8,025	7,020
Other green crops	1,032	942	1,197	1,542
Total green crops	49,898	49,263	48,207	46,731
Clover, sainfoin, grasses, for hay	35,269	31,787	28,602	29,419
“ “ “ not for hay	7,438	7,447	8,926	6,782
Total	42,707	39,234	37,528	36,201
Permanent pasture, for hay .	73,726	69,767	58,163	77,059
“ “ not for hay	81,575	88,666	101,244	82,227
Total	155,301	158,433	159,407	159,286
Flax	5	11	4	—
Hops	11	10	11	11
Small fruit	289	302	391	522
Bare fallow	7,490	8,712	11,008	8,648
Nursery ground	113	123	—	117
Mountain and heathland . .	—	1,514	—	1,417
		1888.	1892.	
Woods		31,024	35,829	

Berkshire was considered by the older agricultural authorities to consist of four well-marked divisions. 1. The Vale, containing all the land north of the Ridgeway, its chief soil being a strong loam which produces abundant crops of wheat and beans, &c. 2. The Chalk Hills, which occupy the central parts of the county, their northern portion consisting of grassy downs, where large flocks of sheep are fed, and on which there are some extensive training-stables for racehorses, while the arable portions of the district are well adapted for turnips, barley, &c. 3. The Kennet Vale, where the soil is usually gravelly or light loam on which turnips and barley are grown. The irrigated meadows of the Kennet yield excellent pasturage, while extensive osier plantations are maintained near the stream for basket-making. 4. The Forest Division, which commences on the east of the Loddon and extends across the breadth of the county to Old Windsor. In this district all the preceding varieties of soil are found, but a very large proportion of the country is either open heathland, pine plantations, or the woodland tracts or parks of Windsor Forest.

ELEVATION OF SURFACE.

Although the highest point in Berkshire does not reach 1,000 feet above the sea, there is probably no equally level county which can compare with it in the picturesque character of its scenery; while its

rich meadows, the graceful outlines of the chalk hills, its high breezy heathlands, its sombre pinewoods, and its stately royal park and forest, afford varied and delightful scenes of quiet and peaceful beauty.

The contour of the county is rather unusual. If a section of it were made from north to south from Lechlade to the Hampshire border, which is to the south of Hungerford, it would be found that on the north the river Thames at Lechlade is about 250 feet above the sea level. From this level the country rises and attains the height of 465 feet on Badbury Hill. This hill is on the western side of a range which stretches nearly west and east, its highest eastern points being Pickett's Heath, which is 535, and Wytham Hill, which is 539 feet above the sea. This range slopes gently down to the south so that near Shrivenham its altitude is about 200 feet. The country then rises rapidly to the summit of the White Horse Hill, which is 840 feet high. This chalk ridge, like the preceding range of hills which belong to the Coralline formation, also runs in a direction which is nearly west to east; in fact, it is one of the four ranges of chalk hills which radiate from the high ground of Salisbury Plain¹. In its progress through Berkshire it sinks slightly in elevation, so that while on the White Horse it is 840², at Wantage it is 740, at Letcombe Castle it is 690, at Lowbury it is 585, and at King Standing Hill it is only 391 feet above the sea: the river Thames at Mongewell is about 160 feet above sea level. Returning to consider the imaginary section on the west of the county it will be found that from the summit of the White Horse Hill the ground gradually slopes towards the Kennet, which enters the county near Hungerford; there the river is about 328 feet above the sea, while at its outfall into the Thames at Reading it is not more than 123 feet. This river runs also in a direction nearly west and east in Berkshire. From the trough of the valley at Hungerford the ground soon rises in an abrupt escarpment of the Chalk to the greatest altitude which this formation reaches in southern England, namely, on Walbury Camp, which is 959 feet above the sea; the neighbouring hill, called Gibbet Hill, reaches 955 feet, and in the slight depression between the two hills there is a small pond which is 912 feet above the sea. This range does not

¹ The four great ranges of chalk hills which radiate from Salisbury Plain are: (1) The range which, under the names of the Marlborough Downs, the Chiltern Hills, and the East Anglian Heights, the Lincoln Wolds, and the Yorkshire Wolds, extends as far as to Flamborough Head. The line is not unbroken throughout, as the Thames, the Wash, and the Humber cut through it. (2) The range called the North Downs, which terminates at the cliffs of Dover. (3) The range known as the South Downs, which runs through Hampshire, and terminates at Beachy Head. (4) The range known as the Dorset Heights, with the prolongation Blackdown Hill and Purbeck Heights.

² Not 893 feet as given in the *Encyc. Brit.*

pursue the easterly direction for any considerable distance, but turns southwards and soon leaves the county. It will thus be seen that the county slopes from west to east, and that three distinct ranges of hills traverse it from the west to the east. South of the Kennet, to the east of the point where the chalk range leaves the county, the country rises in a gentle slope, and separates for some distance the valley of the Emborne¹ from that of the Kennet; but the height of the hilly ground forming the watershed is only about 400 feet on Greenham Common, and this height gradually sinks eastwards, Crookham Common being 382, Burghfield 313, and Sulhampstead only 300 feet above sea level. To the south of Reading the watershed of the Blackwater is formed by hilly ground belonging to the Tertiary formations. The river enters Berkshire at a point where the height of the surface of the water is about 200 feet above the sea, its outfall near Twyford, after its junction with the Loddon, being about 100 feet. The hills in this southern part of the county are not arranged in regular lines as are those already mentioned, but are irregularly scattered over the area. In the south-east there is a flat tract between Twyford and Maidenhead, of which a considerable extent is less than 150 feet, and some not more than 90 feet above the sea. East of Twyford a rather conspicuous and picturesque group of hills is formed by the London Clay, one of which, Bowsey Hill, reaches an altitude of 454 feet, Ashley Hill being 358, and Crazey Hill 316 feet above the sea. On the south-west the same formation rises into a hilly country, which on Hawthorn Hill is 248, on St. Leonard's 294, and on High Standing Hill and Cranbourn Park is 280 feet above the sea. South-west of Wokingham the ground rises at Finchampstead to 320 feet, and overlooks the valley of the Blackwater; Caesar's Camp near Bracknell attains an elevation of 410 feet, Lodge Hill is 377, and Easthampstead Plain, the highest point of the Bagshot Beds, is 423 feet above the sea. The river at Maidenhead is only 84 feet above the sea.

Berkshire therefore not only slopes from the west to the east, but there is also a decided slope from the north to the south. It must be borne in mind that the central plateau of the Chalk is by no means a plain, or even an inclined plain; on the contrary, it is very diversified, and may be roughly divided into two parts; of these the western, which is on the whole the more elevated of the two, is drained by the Lambourn, its northern side being terminated by the White Horse, and, as has been said already, the country slopes down towards the Kennet. In this part the elevation of Wickham Heath is 477 feet, the river Lambourn near Welford is 329 feet, and at its junction with the Kennet near Shaw is 254 feet above the sea. The eastern side includes

¹ The name of the stream is written Emborne, that of the parish Enborne on the Ordnance Map.

the high ground of the Chalk, which rises at Lowbury to a height of 585 feet; further south, overlooking the Pang stream, is Oare Hill, which is 397 feet high, and in the vicinity is the earthwork known as Grimsbury Castle, which is 461 feet high. The high ground about Aldworth reaches 579 feet, and Beedon touches 545 feet, while Ashampstead is 447 feet, and Cold Ash Common 513 feet above the sea. The watershed of the Pang and the Kennet, near Englefield, is nearly 300 feet above the sea.

The foregoing and the following altitudes have been obtained from the six-inch Ordnance Survey Maps:—

- | | |
|--------------------------------------|---|
| Aldworth, 503. | Faringdon (Market Place), 332. |
| Appleton Road, 329. | — Wood beneath the Clumps, 448. |
| Ashampstead, 447. | Finchampstead Ridges, 320. |
| Ashley Hill, 358. | Frilsham Mill, 260. |
| Ashridge, 545. | |
| Avinton, Turnpike Road, 348. | Gibbet Hill, 955. |
| | Greenham Common (highest point), 401. |
| Badbury Hill, 465. | Grimsbury Castle, 461. |
| Beedon, 545. | Grove Corner, 457. |
| Bennet's Wood, 449. | |
| Boar's Hill (Pickett's Heath), 535. | Hadley Barns, near Membury Fort, 714. |
| Bowsey Hill, 454. | Hampstead Norris, 311. |
| Boxford (Lambourn Stream), 363. | Hanney Field, 200. |
| Bracknell, 272. | Hartshill, 421. |
| Bradfield, 193. | Harward Bottom, 474. |
| Bray (Thames), 73. | Hawthorn Hill, 248. |
| Buckland, 258. | High Standing Hill, 280. |
| — Turnpike Road, 359. | Hungerford, 328. |
| Bucklebury Common, 428. | |
| Burghfield Common, 313. | Inkpen Common, 517. |
| Buscot Park, Lake, 271. | King Standing Hill, 391. |
| | |
| Caesar's Camp, 410. | Letcombe Castle, 690. |
| Cassington (Thames near), 203. | Little Shefford (Lambourn Stream), 333. |
| Chapel-row Common, 411. | Lodge Hill, 377. |
| Chieveley, 398. | Long Moor, 174. |
| Church Speen, 318. | Lowbury Hill, 585. |
| Cold Ash Common, 473. | |
| Cole at junction with Thames, 254. | Maidenhead (Thames), 84. |
| Coleshill, 347. | Marlstone, 328. |
| Coles' Pits, 312. | Midgham, 228. |
| Cookham Down, 322. | Mongewell (Thames), 160. |
| Cranbourn Park, 302. | Mortimer Common, 318. |
| Craze Hill, 316. | |
| Crookham Common, 382. | Newbury (River Kennet), 254. |
| Cuckhamsley Knob, 650. | Oare Hill, 397. |
| Cumnor Hill, Turnpike Road, 411. | Oxford (Thames), 175. |
| | |
| East Garston (Lambourn Stream), 370. | Padworth Meadows, 180. |
| Easthampstead Plain, 423. | |
| East Ilsley, 600. | |
| Eleot Green, 417. | |
| Englefield, 275. | |

Pangbourn (Thames), 144.
 Pilworth Farm, 579.
 Pusey Wood, 290.

Reading, 154.
 — Thames at, 123.
 Riever Wood, 738.
 Buscombe, 121.

Sandhurst, 228.
 Shalbourn Hill, 492.
 — Village, 437.
 Shefford Woodlands, 550.
 Silchester, 334.
 Southridge Green, 499.
 Stanford Dingley, 193.
 Stanford-in-the-Vale, 225.
 St. Leonard's Hill, 294.
 Stock-cross Common, 432.
 Stubbing's Heath, 153.
 Sulhampstead, 300.

Sutton Courtney (Thames), 160.

Thames at junction with the Cole,
 254.
 Thatcham, 235.
 Tilehurst, 300.

Walbury Camp, 959.
 Wantage (Downs above), 740.
 Wash Common, Newbury, 409.
 Wayland Smith's forge, 703.
 Welford (Lambourn Stream), 329.
 White Horse Hill, 840.
 White Waltham, 99.
 Wickham Heath, near Newbury, 477.
 Wigmore Ash Pond, 912.
 Wokingham, 237.
 Wytham Hill, 539.
 — Woods (Thames under), 198.

Yattendon, 373.

In describing the botanical divisions of the county reference will be made to the more extensive and beautiful prospects which can be enjoyed from its hills. It may be well to point out here that among the eminences from which such prospects can be obtained, the following are especially to be noted—Boar's Hill, Cumnor Hurst, Faringdon Clumps, Wytham Hill, White Horse Hill, Letcombe Castle, Lowbury Hill, Wittenham Clumps, Cold Ash Common, Snelsmore Common, Gibbet Hill, Walbury Camp, Greenham Common, Finchampstead Ridges, Bowsey and Ashley Hills, Park Place, Caesar's Camp, Snow Hill in Windsor Park, and the view from the Flag Tower of Windsor Castle, from which twelve counties can be seen.

WOODS AND FORESTS.

The district immediately west of Oxford was doubtless in early times covered with forest; even now the woods of Wytham are very extensive and beautiful, situated as they are on hilly ground and reaching very nearly to the top.

Appleton Common is a wooded common lying between Oxford and Longworth, and consists principally of Oak with an undergrowth in which Privet is a frequent shrub. The denser portions still contain the rare *Daphne Mezereum*. The upper common contains *Colchicum*. In the vicinity is Tubney Wood. The trees are principally Oak, with an undergrowth of Hazel. *Euonymus* is frequent, and there is a good deal of Maple in the hedges.

Pusey Wood is on a light sandy soil; it is overrun with *Impatiens parviflora*, and produces also *Adoxa*, *Lycopsis*, and *Echium*.

In the extreme west is Eaton Wood, near Buscot, which is situated on hilly ground. The centre of the Vale has few woodlands, but the

hilly ground of Boar's Hill range has several coppices, principally of Oak, although one contains, as its name implies, a good quantity of Birch, and others are planted with Larch. These coppices contain a rich flora, which will be noticed later on.

Bagley Wood, which was once common ground for the neighbouring parishes, is now claimed by St. John's College. The wood is principally Oak, with a considerable amount of planted Larch, and the undergrowth contains a good many Willows and Sallows; *Pyrus torminalis* used to be found, its plant of chief interest being that pretty western species, *Cervicina* (*Wahlenbergia*) *hederacea*.

Radley Wood, which is a little to the south, contains no plant requiring special mention, except *Salix Smithiana*.

From Radley in the north-east, and Coxwell in the north-west, to the Ridgeway in the south, the country is so much under cultivation as to leave no woodland more extensive than small coppices or spinneys, and yet from the number of trees, principally pollarded Elms, in the hedgerows, the country does not appear to be bare when seen from an eminence overlooking it.

There is a strip of wood on the east side of the Wittenham Clumps where *Picris Echioides* is very abundant; on its borders *Rosa tomentosa* occurs, and another wood nearer Didecot contains several interesting Brambles as well as Sweet Chestnut and Wych Elms. Unwell Wood is a large and very interesting wood which stretches for a mile over the chalk downs to the south of 'King Standing Hill,' and occupies the head of one of the dry chalk valleys. The soil varies considerably, so that the flora is of a very interesting character; the trees consist chiefly of Oak and Beech, but a large number of Cherry, White Beam, Privet, and Hazel are also found. The country between Unwell Wood and Reading contains many smaller woods and coppices, most of which produce an interesting flora, and lend a great charm to the landscape by their variety of contour and the different tints of their vegetation: among these woods are Bennet's Wood, Hartridge Lye Wood, Beche Park Wood, Beech Wood, Hampstead Park Wood, the large wooded Common of Ashampstead, Hockley Heath Wood, Common Wood, Englefield, and the very beautiful woods of Sulham. In these woods *Polygonatum multiflorum*, which is absent from the woods of North Berkshire, begins to be common. The Yew is rather frequent and is a native tree, and the Hazel is an especially abundant feature. *Euonymus*, *Cornus*, and *Rhamnus catharticus* are more frequent on the Chalk where there is not much surface deposit. A very fine specimen of the Elm is to be seen at Ashampstead; both kinds of Cherry are common there, the Hornbeam is occasionally to be found, while *Pyrus torminalis*, *Daphne Laureola*, and *D. Mezereum* also occur. *Hypericum Androsaemum*, *H. montanum*, *Atropa*, *Hypopitys*, *Habenaria bifolia*, *Ruscus aculeatus*, *Orchis*

mūtitaris, *Helleborus foetidus*, *H. viridis*, *Epipactis violacea*, and *Iris foetidissima* are among the rarities. The woods, which are situated on the Tertiaries, contain *Vaccinium Myrtillus*, which may be said to be absent from the north of the county. In similar woods occurs *Lathyrus montanus*, which is also very rare in the woods of northern Berks.

There are several important woods on the more central portion of the chalk plateau, one of the largest and most interesting being Ashridge Wood, in which three rare plants are found, namely, *Ornithogalum pyrenaicum*, *Colchicum autumnale*, and *Vicia sylvatica*. The former is very abundant over a certain area. *Lathyrus sylvestris* and *Polygonatum multiflorum*, the latter very luxuriant, with many other local plants, are also found. Langley Woods, Catmore Copse, and Welford Woods contain many interesting species. Near Hermitage are the hilly and picturesque woods known as Oare and Fence Woods; these are on the Tertiary beds, and offer a different vegetation from the woods on the Chalk. Here occur *Equisetum sylvaticum*, *Vaccinium Myrtillus*, *Carex pallescens*, *Osmunda*, *Blechnum*, *Menyanthes*, and *Gnaphalium sylvaticum*, and in this wood is a considerable quantity of Birch, with some planted Larch and Pines. Still further to the west are Ashdown Woods and the scattered coppices which now remain of the once conterminous woodlands of Lambourn, Garstang, and Shefford. The wooded parts of Snelmsore Common must not be omitted. In some of these woods the Snowdrop, the Daffodil, and Deadly Nightshade have been found.

The extensive peat deposits in the Kennet Valley show that it was once a dense woodland tract. South of Hungerford there is a beautiful hanging wood, chiefly composed of Hazel with *Pyrus Aria*, on the chalk escarpment known as Riever Wood, containing *Myosotis sylvatica*, the only recorded locality for it in the county, and also *Paris quadrifolia*, *Polygonatum multiflorum*, and a profuse growth of *Lychnis dioica*. A neighbouring wood is the home of *Carex strigosa*, *Poa Chaixii*, and *Ornithogalum pyrenaicum*. There are many coppices about the well-wooded park of Hampstead Marshall, in which the *Mistletoe*, *Iris foetidissima*, *Dryopteris montana*, and *Lathraea* have been found. The wooded portions of Greenham Common have *Myrica Gale*, and the Alder gullies often contain the Alder buckthorn and the Golden Saxifrage. Further to the east are the extensive and beautiful woods of Aldermaston, Wasing, Mortimer, and Ufton, chiefly composed of plantations of the Scotch Fir, which was formerly a native of the county, as appears from the remains of the cones in the peat; the present trees have been planted during recent times, although self-sown trees are now springing up over this heathy tract. Oaks are also found in the more clayey parts, and on the peaty margins of streams the Alders luxuriate; in the more sandy soils are beautiful specimens of Birch, and Hazels too are frequent. The undergrowth in the pine woods

consists often of *Erica Tetralix*, *E. cinerea*, *Molinia*, and *Vaccinium Myrtillus*; but a considerable number of local plants are also found, among which may be mentioned *Dryopteris montana*, *Polystichum angulare*, *Phegopteris polypodioides*, *Carex Pseudo-cyperus*, *Convallaria*, *Equisetum sylvaticum*, *Epipactis latifolia*, *Viola palustris*, *V. lactea*, and *Allium ursinum*, beside several species of *Rubus*, &c.

South-east of Reading, near Wargrave, are the wooded heights of Bowsey and Ashley hills, where the Beech luxuriates, containing *Daphne Mezereum*, *Narcissus Pseudo-narcissus*, *Helleborus*, *Veronica montana*, *Fragaria muricata*, &c. The charming plantations about Park Place, with the hilly chalk woods near Culham Court, have a large amount of *Hypericum montanum* and *Clematis*. Here, too, are *Atropa*, *Vinca minor*, *Hypopitys*, *Ophrys muscifera*, &c. The beautiful Beech woods of Cookham Dean, which contain large Cherry trees, have yielded *Elymus europaeus*, *Orchis militaris*, *Crepis foetida*, *Hypericum Androsaemum*, *H. montanum*, *Neottia*, &c.

Near Maidenhead is Stubbing's Heath, which once formed part of 'Maidenhead Thicket,' the well-known resort of highwaymen, as Leland says 'it was infested with robbers for five miles in extent.' On it are now found a large number of Brambles, Sweet-briar, Buckthorn, Blackthorn, and fine bushes of Hawthorn, but the soil is not very favourable for heath plants. In the vicinity *Carpinus* is probably native. In the more immediate neighbourhood of Reading are the plantations of Bearwood, which probably occupy the place of the 'Berroc Wood' of the old maps in the neighbourhood of Oakingham (Wokingham), a district at one time included in the Forest of Windsor. In these woods a great variety of forms of the genus *Rubus* occur, and the vegetation under the planted *Pinus* and *Castanea* is of a heathy character. The country between Wokingham and Blackwater on the one side, and Wokingham and Easthampstead on the other, consists of a heathy tract, with here and there plantations of Scotch Fir, and in less abundance of Sweet Chestnuts and Birch. *Molinia*, *Erica Tetralix*, and *E. cinerea* are the chief components of the undergrowth. About Caesar's Camp there is a good deal of *Vaccinium*, and a hill near Sandhurst is named after the same plant—Whortleberry Hill. With it occur *Dryopteris montana*, *Blechnum*, *Osmunda*, *Epilobium angustifolium*, *Myrica Gale*, *Rhamnus Frangula*, *Pyrola minor*, *Carex canescens*, *C. Pseudo-cyperus*, *Viola palustris*, *Stellaria umbrosa*, *Narcissus*, *Capnoides claviculata*, *Agrostis setacea*, *Polygonum dumetorum*, &c.

By the rivers, especially by the Kennet, there are some extensive plantations of Osier which is grown for basket-making; in these *Salix viminalis*, *S. purpurea*, and *S. triandra* are the most frequently cultivated. The pollard willows which border the streams are usually *Salix alba* and *S. fragilis*, with the hybrid *S. viridis*.

The only woodland tract which now remains to be mentioned is the Forest of Windsor, which was made a Royal Forest by William the Conqueror; it was once of great extent, being 120 miles round. As time went on its area became more circumscribed; in the reign of King James I, Norden estimated the circumference at 77 miles, and the forest then contained 300 head of deer. In later years it dwindled in size, so that in the map published by Rocque its circuit is given as 56 miles. In the year 1813 an Act of Parliament was passed for its enclosure. The portion which had been previously enclosed, known as Windsor Great Park, was of small extent compared with the whole range of the forest, being less than 4,000 acres, while the open unenclosed forest amounted to 24,000 acres. The district once occupied by it still shows by its local names, such as Crowthorn, Hackley Bushes, Wickham Bushes, Whortleberry Hill, Hagthorn Hill, that the ground in which they are situated was a forest tract. At the present time, although much diminished in extent, the Royal Forest possesses not only the charm which its historic associations give it, but has in itself great natural beauty: from its heights very extensive views may be had over a rich and beautiful country; its splendid specimens of Oak, Beech, Birch, Scotch Fir, and other forest trees, its noble avenues of Elms, and its fine sheets of ornamental waters, combine to make it a scene of great interest, while the pleasure of seeing it is enhanced by the sense of freedom to wander without hindrance through its verdant alleys.

The King Oak, which is said to have been a favourite tree of William the Conqueror, stands near Cranbourn enclosure. In some rides, near the entrance to the St. Leonard property, are four trees known as the Queens' trees, which were selected respectively by Queen Anne, Queen Charlotte, Queen Adelaide, and Queen Victoria. Another fine Oak, called the Grandfather of the Forest, can be seen close to the road leading from Forest Gate to High Standing Hill. Herne's Oak, immortalized by Shakespeare, fell in 1863: her Majesty has a cabinet made of the wood. The Elms in the great avenue known as the Long Walk were planted in 1680.

METEOROLOGY.

RAINFALL.—From thirty-seven years' observations made at Oxford Observatory, from the year 1851 to 1887 inclusive, the mean yearly rainfall is shown to be 26.391 inches. The driest year was 1870, when only 17.564 inches were registered, and the wettest year 1852, when 40.416 inches were registered. The maximum monthly fall was in October, 1875, and amounted to 7.531 inches; the minimum amount

was in September, 1865, when only 0.176 was registered. In the exceptionally dry year of 1893 the total amount of rain registered at Oxford was only 18.596 inches. March of that year had only 0.109, and April only 0.060 of an inch.

<i>Mean Monthly Fall of 37 yrs. observations.</i>		<i>Max. Monthly Fall.</i>		<i>Min. Monthly Fall.</i>	
January	2.364 inches.	5.451	1852	0.272	1855
February	1.624 "	3.744	1883	0.279	1862
March	1.609 "	5.462	1862	0.413	1854
April	1.720 "	3.926	1882	0.410	1855
May	2.076 "	4.971	1878	0.430	1871
June	2.495 "	7.087	1852	0.658	1870
July	2.538 "	6.098	1880	0.470	1864
August	2.366 "	5.120	1878	0.494	1880
September	2.620 "	5.838	1876	0.176	1865
October	2.838 "	7.531	1875	0.733	1879
November	2.200 "	7.142	1852	0.460	1855
December	1.938 "	5.103	1876	0.418	1853

The general yearly mean amount of cloud, from thirty-eight years' observations, from 1850 to 1887, at the Radcliffe Observatory, Oxford, is 7.06.

The general yearly mean reading of the Barometer for a period of thirty-three years, from 1855 to 1887 (inclusive), is 29.721, varying from 29.792 in 1887 to 29.572 in 1872.

Temperature.

The mean yearly reading of the Dry-bulb Thermometer from 1855 to 1887—thirty-three years—is 49.04. The highest yearly reading was 51.43 in 1868, the lowest 45.52 in 1879.

<i>Mean Monthly Reading of the Dry-bulb Thermometer from 1855 to 1887.</i>		<i>Max. Monthly Reading, 1855-1887.</i>		<i>Min. Monthly Reading, 1855-1887.</i>	
January	38.58	44.5	1884	30.3	1881
February	40.19	46.2	1869	29.5	1855
March	41.59	46.1	1859	35.5	1883
April	47.05	52.	1865	42.5	1860
May	52.15	57.4	1868	48.	1855
June	58.60	63.8	1858	55.1	1860
July	61.85	66.5	1859	56.8	1879
August	60.87	64.	1871	57.1	1860
September	56.33	61.7	1865	52.3	1860
October	49.70	54.4	1861	44.7	1887
November	42.43	49.2	1881	37.8	1871
December	39.56	46.1	1868	32.8	1874, 1878

The mean yearly reading of the Wet-bulb Thermometer for thirty-three years' observations is 46.22; varying from 43.99 in 1887 to 47.95 in 1857.

<i>Mean Monthly Reading for 33 years.</i>		<i>Max. Monthly Reading.</i>	<i>Min. Monthly Reading.</i>
January	37.28	42.9 1875	29.2 1881
February	38.57	43.1 1867, 1872	29.5 1855
March	39.19	43. 1882	33.0 1883
April	43.70	48.8 1865	39.5 1887
May	48.20	52.8 1868	45.1 1885
June	54.26	57.3 1866	51.2 1871
July	57.20	61.3 1859	53.9 1858
August	56.55	59.5 1857	54.2 1862
September	53.29	58.3 1865	49.5 1877
October	47.48	51.7 1861	42.1 1887
November	40.66	47.3 1881	35.6 1871
December	38.18	44.0 1857	31.5 1870

The general yearly mean amount of Ozone registered for a period of twenty-one years at the Radcliffe Observatory is 2.4.

The yearly sum of bright sunshine is in hours as follows—1881, 1546.8 hours; 1882, 1461.4; 1883, 1465.3; 1884, 1260.9; 1885, 1434.3; 1886, 1368.1; 1887, 1581.5; 1893, 1765 hours. These observations were obtained at the Radcliffe Observatory by means of a Campbell-Stokes sphere sunshine recorder, which is placed on the top of the tower, at a height of 100 feet from the ground.

The mean direction of the wind for the year 1887 is $276^{\circ} 57'$, or nearly W. by N. It may be noticed that the whole horizontal motion of the air during the same year was 102,851 miles.

The following measurements of the rainfall of Berkshire are obtained from Symon's Yearly Reports of the British Rainfall, which should be consulted by those desiring fuller information.

Faringdon, 340 feet above sea . . .	1884.	1885.	1886.	1887.	1888.	1889.	1890.	1891.	1892.	1893.
Denford Park, near Hungerford, 430 ft.	22.79	28.63	34.26	21.05	28.02	24.76	22.61	32.10	21.32	19.36
Wellington Coll., 283 feet . . .	23.93	29.34	33.55	22.50	32.35	25.66	24.58	37.54	25.95	26.21
Yattendon, 440 ft.	21.30	26.82	28.24	20.29	27.50	23.52	23.16	31.27	25.07	21.81
Newbury, 260 feet	21.43	26.70	30.21	20.08	26.86	25.55	21.10	32.10	21.65	20.20
Reading, 154 feet	20.89	28.22	30.03	22.54	29.05	26.59	23.05	35.51	22.36	22.35
Wallingford, 175 ft.	20.55	27.43	27.93	19.51	25.63	20.02	21.28	28.90	20.35	20.04
Maidenhead, Cook- ham, 90 feet . .	17.86	22.11	26.79	18.62	23.69	22.18	19.50	28.71	20.08	17.72
	21.26	27.44	27.95	19.32	22.92	22.21	21.83	28.15	21.86	19.70

The number of days on which rain fell at the following stations in Berkshire is also taken from Symon's Year Books.

	1884.	1885.	1886.	1887.	1888.	1889.	1890.	1891.	1892.	1893.
Faringdon . . .	156	175	181	128	173	162	175	190	150	156
Denford Park . .	167	186	190	147	221	205	190	201	169	160
Wellington College	167	...	190	133	148	168	176	176	154	140
Yattendon . . .	149	153	189	144	206	153	167	105	157	159
Newbury . . .	169	179	187	156	189	170	166	193	141	150
Reading . . .	143	166	169	123	167	153	162	183	145	146
Wallingford	107(?)	142	115	154	154	162	187	150	155
Cookham . . .	149	182	168	133	169	144	146	166	144	136

The above figures apparently show that on the western side of the county there is a heavier rainfall than there is on the eastern side, since the average rainfall at Faringdon from ten years' readings of a gauge placed 340 feet above the sea is 25.49 inches, while at Wallingford, on the east side of the county, only 21.72 inches were registered. At Denford Park, near Hungerford, in the west of Berkshire, the yearly mean was 27.76, but at Reading, in the east, it was only 23.26. At Wellington College, on the western side, the yearly mean was 24.89, but at Cookham, on the east, it was only 23.16.

Newbury and Yattendon, which are on about the same line of latitude, have a different amount of rainfall. The Yattendon gauge is situated 440 feet above sea level, and the yearly mean is 24.60, while the Newbury one, which is only 260 feet above the sea, has a yearly mean of 26.05.

At Wallingford in 1893 only 17.72 inches were registered; the highest yearly amount was registered at Faringdon in 1886, namely 34.26 inches.

GEOLOGY OF BERKSHIRE.

A brief sketch of the geology of the county is all that space allows. The following works on the local geology are enumerated for the convenience of those wishing to obtain fuller and more precise information :—

- Geology of Oxford and the Valley of the Thames, by John Phillips, 1871.
- Sections of the Strata near Oxford, John Phillips, in *Quart. Journ. Geol. Soc.* xvi. (1860) pp. 115-119, 307-311. Gravel near Maidenhead, Prof. J. Prestwich in *Journ. Geol. Soc.* xii. (1886) p. 131. Dr. Buckland in *Trans. Geol. Soc.* 2nd ser. ii.
- Bagshot Beds, W. H. Herries in *Geol. Mag.* n. s. dec. 2. viii. (1881) 171.
- Sections of Woolwich and Reading Beds at Reading, Prof. T. Rupert Jones and C. Cooper King.
- Geol. and Physical Features of Bagshot District (1880), *Geol. Ass. Proc.* vi. (1881) 429-446.
- Quart. Journ. Geol. Soc.* xxxi. (1875) p. 451.
- Geology of Berkshire in Kelly's Directory of Berks, Bucks, and Oxfordshire, by W. Jerome Harrison, pp. 4-7, 1883.

And the following Memoirs of the Geological Survey of the United Kingdom :—

- The Geology of parts of Berkshire and Hampshire (Sheet 12).
- The Geology of parts of Oxfordshire and Berkshire (Sheet 13).
- The Geology of parts of Middlesex, Hertfordshire, Buckinghamshire, Berkshire, and Surrey (Sheet 7).
- The Geology of part of the Thames Valley (Sheets 1, 2, and 7), London.
- The Jurassic Rocks of Britain, vol. v.
- The county is included in Sheets 7, 8, 12, 13, 34, 45 SW. of the One-Inch Map of the Geological Survey of England and Wales.
- Another useful Map is the Index Map published by the Geological Survey on the scale of 4 miles to an inch. Berkshire is given in Sheet 11.

The Geological formations that come to the surface within the county are shown in descending order in the following table :—

Post Tertiary		{ Superficial deposits including Clay with Flints. Low-level Alluvium. High-level Alluvium and Gravels.	
Tertiary or Cenozoic	{	Eocene	{ Bagshot Beds. London Clay. Reading Beds.
Secondary or Mesozoic	{	Cretaceous	{ Chalk. Upper Greensand. Gault.
		Neocomian	{ Lower Greensand. Portland Beds.
	{	Jurassic	{ Kimmeridge Clay ¹ . Corallian Beds. Oxford Clay.

The general strike of the beds is nearly east and west, and the dip is to the south ; so that, in travelling from north to south, we pass continually on to higher and higher beds. The outcrops of the several formations show on the map as a series of approximately parallel strips crossing the county from west to east.

The **Oxford Clay** consists of bluish or grey clay, which weathers to a yellow or brown colour at the surface. It is probably not less than 500 feet thick in Berkshire ; in the upper part the bedding is indistinct, and the clay has a tendency to be lumpy ; the lower part is more finely laminated and shaly. Large *Septaria* and thin beds of earthy limestone occur in it. Selenite and Pyrites are common, and the fossils are often pyritized. The country where the Oxford Clay forms the surface is for the most part low-lying, flat, or feebly undulating, and of unattractive aspect. Its soil is stiff, damp, and cold ; and the land is usually under pasture. It is sparsely populated and almost destitute of villages : one main cause of this is the difficulty of obtaining a supply of water from the formation.

In Berkshire the Oxford Clay forms a narrow strip of low-lying land, a mile or two across, bordering the southern bank of the Thames from Lechlade to Botley. It also stretches from Coleshill to Lechlade, and the village of North Hinksey is situated on it ; a narrow strip runs round Wytham Hill, and an irregular piece reaches as far south as Iffley. Harrowden Hill near Longworth, situated on this formation, is capped with Coralline Oolite.

In its area are included the Common of Thrupp and the wooded Common of Appleton, but there is little variety in the vegetation.

Among the plants which are found on the Oxford Clay, but which are by no means confined to it, are *Picris Echioides*, *Senecio erucifolius*,

¹ I have followed the spelling adopted by my friend the late Professor A. H. Green.

Dipsacus sylvestris, *Juncus glaucus*, *Equisetum maximum*, *Scirpus sylvaticus*, *Carex pendula*, *Paris quadrifolia*, *Centaurea nigra*, *Cnicus palustris*, and *Pulicaria dysenterica*.

The Corallian Beds, when fully developed, fall into the following divisions :—

Upper Calcareous Grit.

Coral Rag.

Lower Calcareous Grit.

The *Lower Calcareous Grit* consists of sands, frequently incoherent. But portions are liable to be bound together by a calcareous cement, so that we find, intercalated in the lower material, beds and large nodular masses of hard calcareous sandstone.

The *Coral Rag* is mainly limestone. Here and there it includes small Coral reefs, with the corals still in the position in which they grew. Other portions consist of rolled and worn fragments of various calcareous organisms. Bands of Clay also occur.

The *Upper Calcareous Grit* is scarcely recognizable in the county.

The country occupied by the Corallian Beds forms a plateau rising in a low escarpment on the north above the Oxford Clay, and with a gentle slope to the south. The soil is light and open, sandy or rubbly according as sand or limestone forms the bed rock. The district is much more thickly populated than that of the Oxford Clay and contains many villages. On the houses and walls *Sedum dasphyllum* may be found, and is locally abundant and possibly native, but practically restricted to this area. Along the northern and eastern escarpments many small valleys cut through the Corallian Beds down to the Oxford Clay, and these are the homes of many local bog and marsh plants. The Corallian Beds are bounded on the south by the low flat tract of Kimeridge Clay, except about Faringdon, where the Greensand rises from the upper surface of the Coral Rag. The Coralline Oolite occurs as a very narrow strip at Faringdon, but broadens out so as to embrace the whole of Buckland Cover, and stretches as far south as Fyfield and Frilford, where it retreats northwards by Sandford and Cumnor, and from that place forms only a narrow band above the Oxford Clay. From North Hinksey to Rushmead Copse near Radley the formation exists as a narrow indented band, gradually descending to the south at a dip of about 1° till it reaches the bed of the Thames, where it is overlaid with low-level gravel. A similar narrow band extends above the clay round the headland of Wytham. Near Marcham the formation is fossiliferous and yields fine specimens of *Ammonites perarmatus* together with *Hemepedina Marchamiensis*. At Wytham the formation rises as an outlier to a height of 538 feet. Extensive quarries were worked in it at Wytham, and there are others at Cumnor, &c. On the south the Corallian Beds

can be traced from Shrivenham and Faringdon, and thence eastwards in a belt about three miles wide as far as Abingdon.

On this formation are the extensive bogs of Cothill and Frilford, and the flora contrasts very favourably with that of the Oxford Clay. *Potamogeton coloratus*, *Carex xanthocarpa*, *C. Boenninghausiana*, *Sedum dasyphyllum*, *Rosa agrestis*, and *Cotyledon Umbilicus* appear to be confined to this formation. A conspicuous plant is *Clematis Vitalba*, which is rare or absent from the Clays. Characteristic species are *Cnicus eriophorus*, *Avena pubescens*, *A. pratensis*, *Bromus erectus*, *Brachypodium pinnatum*, *Astragalus glycyphyllos*, *Viola hirta*, *Orchis pyramidalis*, *Cerastium arvense*, *Picris Hieracioides*, *Poterium Sanguisorba*, and *Lithospermum officinale*.

Among the other local plants found on it are *Anemone Pulsatilla*, *Hypopitys*, *Trifolium arvense*, *T. scabrum*, *T. striatum*, *T. medium*, *Lathyrus Nissolia*, *L. sylvestris*, *Genista tinctoria*, *Rubus thyrsoides*, *R. pubescens*, *Geranium pyrenaicum*, *G. rotundifolium*, *Sisymbrium Sophia*, *Arenaria tenuifolia*, *Cnicus pycnocephalus*, var., *Artemisia Absinthium*, *Onopordon*, *Carum segetum*, *Culamintha montana*, *C. parviflora*, *Mentha piperita*, *M. longifolia*, *Myosotis collina*, *M. versicolor*, *Campanula glomerata*, *Polygonum dumetorum*, *Festuca Myurus*, *Ceterach*, *Asplenium Trichomanes*, *A. Adiantum-nigrum*, *Lilium Martagon*, and *Orchis ustulata*.

The **Kimeridge Clay** consists of dark shaly clay, with nodules of earthy limestone often septarian, bands of impure limestone, selenite, and pyrites. It forms a tract of flat unpicturesque country, with a stiff, cold, damp soil. In the west of the county it forms flat, wet fields about Shrivenham, and extends as far as to Longcott: then it is concealed by the Faringdon sponge-gravels of the Lower Greensand, and owing to the unconformity of the representatives of the Cretaceous and Oolitic formations, the Lower Greensand strata rest directly upon the Coral Rag. The Kimeridge Clay reappears on the east side of Coles' Pits (which were once supposed to be an ancient British village) and then stretches as a band of varying width (1-3 miles), principally on the south side of the river Ock, as far east as Sutton Courtney. It in fact forms the level and rather uninteresting country in the centre of the Vale, the fields of East and West Hanney, Steventon, and Drayton. At Abingdon and near Marcham it crosses the Ock and extends northwards to Radley, Sunningwell, and Bagley Wood, and forms a zone round the eminences of Boar's Hill and Cumnor. A similar but narrower belt almost surrounds Faringdon Clump, but on the south-eastern side it thins out and eventually disappears. Many large fields, separated from each other by watery ditches, are found to occupy a considerable portion of the formation, which is poor in botanical features. *Senecio erucifolius*, *Picris Echioides*, and *Dipsacus sylvestris* are found abundantly, and *Apium nodiflorum*, *Sium erectum*, *Epilobium hirsutum*, *E. parviflorum*, and *Pulicaria dysenterica* are

conspicuous objects in its dyke flora. *Lathyrus Nissolia* is found on it or at its junction with the Corallian Beds. The woodland district, which is not of large extent, includes however Bagley Wood, where *Cervicina* (*Wahlenbergia*) *hederacea*, *Equisetum sylvaticum*, *Drosera*, *Convallaria*, *Narcissus Pseudo-narcissus*, *Ranunculus parviflorus*, *Calamintha parviflora*, and many forms of Brambles are found. The flora of the Kimeridge Clay is considerably modified by the drift deposits of high-level gravels, which are found on Wytham and Cumnor Hills, in Bagley Wood, and about Abingdon. Among the more interesting plants which have been found on this formation, in addition to those already referred to, may be mentioned *Ranunculus trichophyllus*, *Thalictrum flavum*, *Roripa sylvestris*, *R. amphibia*, *R. palustris*, *Viola palustris*, *Parnassia*, *Saponaria*, *Stellaria palustris*, *Sagina nodosa*, *Geranium pratense*, *Rubus fissus*, and other species of *Rubus*, *Pyrus torminalis*, *Epilobium angustifolium*, *E. tetragonum*, *E. palustre*, *Chrysosplenium*, *Galium uliginosum*, *Valeriana dioica*, *Oniscus pratensis*, *Campanula Trachelium*, *Vaccinium Myrtillus*, *Cynoglossum officinale*, *Hyoscyamus*, *Veronica montana*, *V. scutellata*, *Pedicularis sylvatica*, *Melampyrum pratense*, *Verbena*, *Lamium Galeobdolon*, *Calamintha montana*, *Samolus*, *Chenopodium rubrum*, *C. hybridum*, *C. Vulvaria*, *Polygonum minus*, *P. mite*, *Neottia Nidus-avis*, *Orchis morio*, *O. incarnata*, *O. latifolia*, *Habenaria chloroleuca*, *Iris foetidissima*, *Paris quadrifolia*, *Juncus obtusiflorus*, *J. compressus*, *Scirpus caricis*, *S. pauciflorus*, *S. sylvaticus*, *S. setaceus*, *Eleocharis multicaulis*, *Carex acuta*, *C. pendula*, *C. flava*, *C. distans*, *C. pilulifera*, *C. disticha*, *C. pallescens*, *C. panicea*, *C. leporina*, *C. echinata*, *C. axillaris*, *C. paniculata*, *C. pulicaris*, *C. dioica*, *Calamagrostis epigeios*, *Milium*, *Melica uniflora*, *Sieglingia*, *Catabrosa*, *Agropyron caninum*, *Equisetum maximum*, *E. sylvaticum*, *E. palustre*, *Blechnum*, *Asplenium Ruta-muraria*, *Ceterach*, *Dryopteris spinulosa*, *D. dilatata*, *D. montana*, *Botrychium*, *Ophioglossum*, and formerly *Narthecium ossifragum*.

A locality of special interest in the Kimeridge Clay area is a detached patch forming the meadows near Marcham. In these meadows a spring rises from the juncture of the Kimeridge Clay with the Coralline Oolite, and its water is loaded with a considerable percentage of chloride of sodium. The water is sufficiently saline to exert a considerable influence upon the surrounding vegetation. Here may be found such maritime or semi-maritime plants as *Scirpus maritimus*, *Buda marina*, *Carex distans*, *Juncus Gerardi*, *Oenanthe Lachenalii*, *Zannichellia pedunculata*, *Apium graveolens*, *Vaucheria dichotoma*, var. *submarina*. A form of *Atriplex deltoidea*, of *Agrostis alba*, and of *Polygonum aviculare*, which resemble the marine forms, also occur.

At Chawley Hurst the Kimeridge Clay is extensively excavated for brick-making, and this industry threatens the fir-capped Hurst. Brickyards in this formation are also found on the south and west side of Boar's Hill, where *Lathyrus sylvestris* occurs in considerable quantity.

The **Portland Sand** exists only as a small outlier, on which the village of Bourton, near Shrivenham, is built. Here a section shows the beds of which the Portland Oolite are composed to be about 50 feet thick, the upper bed being a soft, thinly bedded, chalky oolite, with grains of sand, and the lower a hard bluish limestone with pebbles of Lydian stone and white quartz.

The **Lower Greensand** consists in the main of sands, often coarse and pebbly, usually more or less rusty in colour, and not unfrequently so strongly impregnated with iron oxide as to deserve the name of an iron ore. It is, however, liable to considerable local variations, the most important of which is the so-called 'gravel' of Faringdon. Here the formation is almost entirely composed of finely comminuted shells and hard parts of other organisms, in which are embedded fossil sponges, molluscs, brachiopods, and sea urchins in a better state of preservation. Among the characteristic fossils from the Faringdon Gravels, figured in Phillips' *Geology of Oxford*, are *Manon Faringdonensis*, *Cidaris Faringdonensis*, and *Lima Faringdonensis*.

The outcrop of the Lower Greensand does not stretch, like the outcrops of the other formations, in an unbroken belt across the county. From the river Cole in the west it runs as a narrow strip to Faringdon, and then spreads out into a broad patch. Very little further to the east it is overlapped by the Gault, and it does not show at the surface till the neighbourhood of Culham on the Oxfordshire side of the Thames. Outliers of it occur on Boar's Hill, where it reaches its loftiest altitude in the county on Pickett's Heath, which is 535 feet above sea level, and on Cumnor Hurst. The formation also peeps out at Clifton Hampden, and is seen in some bold picturesque cliffs on the Oxfordshire side of the Thames. In the west of the county, Faringdon Clumps and Badbury Hill, both about 500 feet high, are capped with the Lower Greensand; in the latter place it is more or less fossiliferous; some wood and a fern leaf have been found in the sandstone which caps the whole.

It must also be noticed that, while the various subdivisions of the Jurassic System rest upon one another in the same order, this is no longer the case when we pass to the overlying Neocomian Beds, for in the neighbourhood of Faringdon the Lower Greensand lies sometimes on Corallian Beds. The meaning of this is, that between the Jurassic and Neocomian Periods there intervened a time during which the Jurassic Beds were uplifted, tilted, and denuded, and that the Neocomian Beds were not laid down till these operations had been completed. In geological terminology the two systems are unconformable to one another. Similarly the overlap of the Gault on the Lower Greensand shows that the Cretaceous Beds rest unconformably on the Neocomian.

These detached areas of the Lower Greensand form a light sandy soil, which to the botanist are so many oases, since many local and rare plants are found on them, and the flora exhibits a striking contrast to that of the preceding formation. Some of the species which are found on the Lower Greensand may be enumerated—*Papaver hybridum*, *Sisymbrium thalianum*, *Teesdalia nudicaulis*, *Tunica prolifera*, *Silene anglica*, *Cerastium semidecandrum*, *Sagina ciliata*, *S. apetala*, *Spergula arvensis*, *S. sativa*, *Buda rubra*, *Hypericum humifusum*, *H. pulchrum*, *Geranium lucidum*, *Erodium cicutarium*, *Trifolium arvense*, *T. striatum*, *Ornithopus*, *Vicia lathyroides*, *Rubus idaeus*, var. *anomalus*, *R. sulcatus*, *R. Colemanii*, *R. mercicus*, var. *bracteatus*, *R. oigocladus*, var. *Newbouldii*, *R. affinis*, *R. suberectus*, *R. pyramidalis*, *Rosa tomentosa*, var. *pseudo-mollis*, *Gnaphalium sylvaticum*, *Anthemis arvensis*, *Tanacetum*, *Chrysanthemum segetum*, *Filago minima*, *F. germanica*, *Solidago*, *Erigeron acre*, *Serratula*, *Centaurea Cyanus*, *Hieracium boreale*, *H. sciaphilum*, *H. rigidum*, var. *scabrescens*, *H. umbellatum*, *Jasione montana*, *Erica cinerea*, *Calluna*, *Lycopsis arvensis*, *Myosotis versicolor*, *M. collina*, *Echium*, *Digitalis*, *Veronica officinalis*, *Melampyrum pratense*, *Stachys arvensis*, *Polygonum dumetorum*, *Plantago Coronopus*, *Scleranthus annuus*, *Betula*, *Carex leporina*, *C. pilulifera*, *Agrostis canina*, *Deschampsia flexuosa*, *Aira caryophylla*, *A. praecox*, *Koeleria*, *Festuca sciurioides*, *Nardus*, *Blechnum*, and others.

The Gault consists of bluish clay, usually calcareous and often micaceous, with some bands of phosphatic nodules. The strip of country along which it comes to the surface is flat with a stiff, heavy soil, and, as is the case with the Oxford and Kimeridge Clays, uninteresting in its botanical features. Where Drift deposits occur upon it, they give a little variety to its surface and flora.

The Gault occupies a zone varying from one to three miles in width, which extends across the county from the Wiltshire to the Oxfordshire border. This zone is fairly even on its northern margin, but is very irregular on its southern side.

The usual plants which are to be found on argillaceous soils occur in the Gault, but from the sparsity of woodland many sylvan species are absent. *Senecio erucifolius* is common. *Epilobium tetragonum*, and a hybrid of that species with *E. parviflorum*, have been gathered near Uffington. *Euphorbia exigua*, var. *retusa*, occurs in some of the arable fields. *Montha piperita* is found in one of the ponds. The marshy pastures afford *Menyanthes*, *Orchis incarnata*, and *Ophiglossum*. The Brambles are very few in number, and are chiefly *Rubus ulmifolius*, *R. corylifolius*, *R. dumetorum*, *R. caesius*, and *R. leucostachys*.

The Upper Greensand occupies a belt of country from the Wiltshire border on the west to the Oxfordshire border on the east. It is five or six miles across on its eastern side, that is from Wittenham to Aston Tirrel; from this width the belt gradually narrows till it almost thins out at Woolstone.

The Upper Greensand has at the base a band of hard calcareous free-stone, above which come soft glauconitic sands. The ground occupied by this formation rises in a steep terraced escarpment above the Gault plain, which is most prominent at Kingstone Lisle, Charlton, Milton Hill, Berwick Prior, and Adwell. The upper part of the Upper Greensand is calcareous and contains occasionally phosphatic matter. These constituents render its soil very fertile, and its fertility is further increased by the supply of marly *débris*, which every shower of rain washes down from the Chalk escarpment and spreads over its surface. The flora is consequently much more varied than that of the Gault. About twenty miles south of the main outcrop of the Upper Greensand a small outlier of it is found at the base of Riever Hill, near Inkpen, where the Chalk hills rise from the synclinal trough on the south side of the Kennet. This outlier, which, from its containing the village of Shalbourn, may be called the Shalbourn outlier, is about three and a half miles long, and at its broadest part rather more than a mile wide, but only a narrow strip on the eastern and northern side is in Berkshire, by far the larger portion being in Wiltshire. It owes its occurrence to a continuance of the anticlinal curve of the Vale of Pewsey, the Chalk having been removed by denudation. Another outlier of the Greensand occurs a little to the east of this, but it is wholly outside our bounds, being in Hampshire, and forms that beautiful portion of country on which Sidmonton is situated. The richer and more fertile country afforded by this formation is plainly visible from the Chalk hills of Walbury Camp and Gibbet Hill. The area of the Upper Greensand also contains three outliers of the Chalk, namely, the two historic hills known as the Dorchester, or Wittenham Clumps, and Cholsey Hill.

Among the more local or interesting plants found on the Upper Greensand may be mentioned—*Myosurus minimus*, *Papaver hybridum*, *Fumaria densiflora*, *Cerastium arvense*, *Spiraea Filipendula*, *Carum segetum*, *Caucalis nodosa*, and *Oenanthe crocata* in its most northernly situation in the county. *Cnicus eriophorus*, *Crepis biennis*, *C. taraxacifolia*, *Cynoglossum officinale*, *Hyoscyamus*, *Verbascum nigrum*, *Linaria Elatina*, *L. spuria*, *Salvia Verbenaca*, *Lamium hybridum*, *Polygonum Bistorta*, *Ophrys muscifera*, *Scolopendrium*, *Zannichellia*, and *Allium vineale* are also found. *Potamogeton densum* is rather frequent in the brooks issuing from the Chalk escarpment. *Bromus arvensis*, *B. interruptus*, *Camelina sativa*, and *Lepidium Draba* also occur. In some instances plants are found which are more closely connected with the Chalk formation, for example, *Linaria repens*, *Iberis amara*, *Clematis*, and *Bromus erectus*.

Hops are cultivated on the Upper Greensand near Didcot, and there are extensive orchards of plums and other fruit in the same neighbourhood.

The Chalk. Chalk is a soft, white limestone, consisting largely of the minute shells of Foraminifera, and more or less crumbled remains of molluscs, echinoderms, and other organisms. The purer varieties resemble very closely the foraminiferous ooze now forming on the bed of the Atlantic; they were deposited in a sea free from mechanically carried sediment, but shallower than those in which the *Globigerina* Ooze is now accumulating.

The formation admits of the following subdivisions :—

- | | |
|-----------------------------|----------------------|
| 1. Upper Chalk with Flints. | 5. Lower Chalk. |
| 2. Chalk Rock. | 6. Totternhoe Stone. |
| 3. Middle Chalk. | 7. Chalk Marl. |
| 4. Melloum Rock. | |

From a general point of view we may say that the lower members contain a considerable portion of clayey matter, but the proportion of this decreases, and the rock becomes more and more a pure limestone as we ascend in the series. The lower members of the Chalk form a line of gently undulating hills rising sharply from the plateau of the Upper Greensand. To the south of this the Upper Chalk stands up in a bold escarpment, which rises to a height of 840 feet at the White Horse Hill, and 959 feet at Walbury Camp¹, known also as Coombe Hill and Inkpen Beacon. This long line of escarpment is by far the most striking physical feature in the county. It is indented by numerous narrow winding valleys, most of which are dry; and the softly rounded outlines of the intervening hills are singularly graceful. Viewed from the Vale of the White Horse it presents the appearance of a long alternation of bays and promontories, which give it a striking resemblance to a coast-line; but there can be no doubt that its outlines are the product of subaerial denudation and not of marine action.

The Chalk, like the last two formations, extends right across the county from west to east. On the west it is at least twelve miles in breadth, that is from Hungerford to Compton Beauchamp. On the east side of the county it reaches from Cholsey to Theale, a distance of ten miles, but in this direction it is obscured by many patches of more recent formations. In addition to this main mass of chalk there is a second area, lying to the south of the Kennet. This area, although apparently distinct, is really conterminous with the chalk of the central plateau, the beds of which in their gentle southern slope (from one to three degrees) dip under the Tertiaries of the Kennet Valley to

¹ The height of Walbury Camp is very differently estimated in topographical works. Many authors ascribe to it a height of 1,011 feet, but the lower height here given for it is taken from the more recent Ordnance Survey. The county boundary of Berks and Hants crosses it at its highest point.

reappear at a more abrupt angle, and then form the line of picturesque hills of which Walbury is the highest point. These hills extend from the Wiltshire border near Shalbourn to the spot where they leave Berkshire for Hampshire, near East Woodhay. The Chalk is also present in the south-east of the county from Sonning, on the banks of the Thames, to Remenham, Wargrave, and Maidenhead. It must be borne in mind that the hills of Bowsey, Ashley, and Crazey, between Wargrave and Maidenhead, are thickly capped with London Clay. The chalk hill, on which Windsor Castle is built, is distinct from the main mass of Chalk, being probably an inlying boss which owes its present position to its being elevated by some disturbance. The three outliers, which include the Wittenham Clumps, have been mentioned, and there is an inlying patch near Hampstead Marshall.

At the junction of the upper, more pervious portions of the Chalk with the Chalk Marl, numerous powerful springs are thrown out, which are largely utilized for the growth of watercress, as at Ashbury.

Along this line too the plentiful supply of water has determined the site of numerous villages.

Where the Chalk actually comes to the surface we find rolling downs overgrown by short turf, which forms excellent pasturage. But over a large portion of the county coloured as Chalk in geological maps and where Chalk does exist at a moderate depth, the actual surface is over-spread by a stiff red clay full of flints, known as 'Clay-with-Flints.' There can be no doubt as to the origin of this clay. Surface water, percolating through the porous Chalk, dissolves and carries away in solution the carbonate of lime which makes up the bulk of the rock; the small amount of clayey matter, which Chalk contains, and the Flints are insoluble and are left behind. The process goes on everywhere, but along the steep slopes the resulting product is washed down by rain; it accumulates on the flatter ground. Deposits of sandy clay suitable for brick-making, and hence called 'Brick earth,' are found associated with the 'Clay-with-Flints.' They are probably rearranged sands and clays belonging originally to outliers of the Reading Beds. This 'Clay-with-Flints,' where it is present, will obviously give to the soil and what grows upon it characters very different from those which prevail where the surface is the Chalk itself; the land is much more largely arable, and woods are frequent.

The dry valleys in the Chalk country often contain a spurious gravel made up of broken flints, and sometimes a thin bed of clay spreads over these troughs. In such situations the silvery-leaved *Potentilla Anserina* is often very abundant.

By walking across the belt of Chalk from Wantage to Newbury, or Uffington to Hungerford, or from Ilsley to Theale, the peculiar

characters of the Chalk formation can be well seen. The northern portion is composed of grassy downs with softly curving outlines, or of the more undulating tracts which have been brought under cultivation. Further south the Chalk becomes covered with 'Clay-with-Flints,' 'Brick earth,' or Eocene beds, and is often a woodland tract, such as Ashridge, Lambourn Woodlands, or Ashampstead. Numerous dry valleys radiate from the Ridgeway. Some, however, have springs of a temporary character.

Whiting is largely made from the Chalk at Kintbury by grinding the Chalk in water; the material, after elutriation, is allowed to settle in tanks, and is then framed in moulds and dried. As much as 2,000 tons have been made in a single year. Many of the village churches are built of flints from the Upper Chalk, among others the beautiful church of Shottesbrooke, St. Lawrence at Reading, and Little Shefford. The Chalk is used as a building material for the inside of churches, as at Tilehurst and Sonning, and for the outside of Sparsholt Church.

Sections of the Upper Chalk, with flints in the bedding planes, are to be well seen in the railway cutting at Pangbourn, at Cookham Dene, and in other places. At Englefield great chalk-pit the Chalk appears to be reconstructed.

The flora of the Chalk area offers a great contrast to that of the other geological formations. The grass downs afford a pleasing vegetation in the number of flowering plants which grow among the short turf. Among the specially interesting ones must be mentioned, *Anemone Pulsatilla*, *Hippocrepis comosa*, *Polygala calcarea*, *P. vulgaris*, *Gentiana germanica*, *G. Amarella*, *Carlina*, *Cerastium arvense*, *Asperula cynanchica*, *Thesium*, *Senecio campestris*, *Orchis ustulata*, *O. pyramidalis*, *Ophrys apifera*, *Habenaria viridis*, *H. conopsea*, *Herminium Monorchis*, *Gyrostachis autumnalis*, *Campanula glomerata*, *Bromus erectus*, *Brachypodium pinnatum*, *Koeleria cristata*, *Avena pubescens*, *A. pratensis*, *Blackstonia*, *Arabis hirsuta*, *Spiraea Filipendula*, *Verbascum nigrum*, *Saxifraga granulata*, *Sedum acre*, *Astragalus glycyphyllos*, *Anthyllis*, *Scabiosa Columbaria*. The wooded parts afford *Ornithogalum pyrenaicum*, *Polygonatum multiflorum*, *Cephalanthera pallens*, *Ophrys muscifera*, *Habenaria bifolia*, *H. chloroleuca*, *Epipactis media*, *E. violacea*, *Neottia Nidus-avis*, *Orchis militaris*, *O. Simia* (probably now extinct), *Helleborus foetidus*, *H. viridis*, *Milium effusum*, *Elymus europaeus*, *Myosotis sylvatica*, *Atropa Belladonna*, *Ruscus*, *Lactuca muralis*, *Veronica montana*, *Allium ursinum*, *Pyrus Aria*, *P. torminalis*, *Colchicum*, *Hypopitys*, *Hypericum montanum*, *H. Androsaemum*, *Serratula*, *Lathyrus sylvestris*, *Vicia sylvatica*, *Agrimonia odorata*, *Ilex*, *Nepeta Cataria*, *Daphne Laureola*, *D. Mezereum*, *Iris foetidissima*, and *Juncoides Forsteri*. The cultivated fields have *Iberis amara*, *Fumaria parviflora*, *F. Vaillantii*, *F. densiflora*, *Brassica alba* (which here replaces *B. Sinapis*), *Onobrychis*, *Lathyrus Aphaca*, *Adonis*,

Poterium polygamum, *Valerianella dentata*, *V. rimosa*, *Cichorium*, *Crepis biennis*, *C. taraxacifolia*, *Lithospermum arvense*, *Linaria repens*, *Orobanche Trifolium-pratense*, *Bromus interruptus*, *Alium vineale*, *Anthemis arvensis*, and *Legouzia*. Even this list does not exhaust the flora of the Chalk. On it is the only locality in the county for *Galium sylvestre* and for *Astragalus danicus*. *Rosa rubiginosa*, *R. micrantha*, and *R. tomentosa* are found, but the Brambles are but scantily represented. *Viola hirta* is a conspicuous feature in the spring, as are the wood-plants *Asperula odorata* and *Lamium Galeobdolon*. *Juniperus*, *Clematis Vitalba*, and *Taxus baccata* are also characteristic plants.

Reading Beds. The lowest Tertiary strata found in Berkshire belong to the subdivision known as the Woolwich and Reading Beds. The double name was adopted because the character of the deposits of this date in the eastern part of the London Basin is widely different from that which prevails in the west. Our Berkshire representatives conform to what is known as the Reading type. They consist very largely of stiff clay mottled with a great variety of colours, but they also include beds of sharp sand, also variously coloured, and loams. They rest unconformably on the Chalk, and frequently occupy potholes which have been excavated by percolating water in that rock.

These beds once formed an unbroken sheet extending over the whole of the Chalk, and even beyond its present limits, but they have been largely swept away by denudation, and, beyond their main mass, a very large number of outliers testify that they had formerly a much wider range.

The Reading Beds are found scattered over a large area of Southern Berkshire, the most northern point reached by them being at Letcombe Bowers, where there is a small outlier. Doubtless at one time the whole of the Chalk area was covered by them, but subsequent denudation has removed them from the greater portion of the northern Chalk. The main mass of the Eocene occupies a trough or synclinal of the Kennet forming a triangular area. This can be traced from the Wiltshire border of the county, near the Shalbourne outlier of Greensand, along the south side of the Kennet as far as Crookham. On the north side of the river they extend as far as Thatcham and Theale, but from Thatcham eastwards the drift gravels quite obscure them. At Shaw, near Newbury, the Reading and Woolwich Beds are 52 feet thick. There are a large number of outliers; over forty are given on the Ordnance Map (No. 13) alone. North of the Kennet, on the western side of the county, is the important outlier of Wickham Heath, which forms a piece of high ground nearly a mile in breadth, and about six miles in length. It is thickly covered with flint gravel; the small patch east of Elcot is a projecting part of this outlier. Two small outliers at Stanham Green are chiefly yellow sand. Another

outlier is to be seen between Woolley Park and Farnborough, further to the south-east is the Beedon outlier, and between that and the main portion of the beds are two or three others. The main mass of the Reading Beds is met with near Curridge Common, where the 'bottom bed' is exposed. From Curridge Common the beds run north-east to Hampstead Park, and then follow the line of the Frilsham and Bradfield Valley along its western and southern side as far as Englefield. Thence the boundary becomes much hidden by a thick bed of gravel. Other important outliers north of the Kennet which should be mentioned are those of Snelsmore, Frilsham, Tilehurst, Yattendon, and Basildon. South of the Kennet, between Newbury and Enborne, they are to a great extent concealed from view by a widespread and deep accumulation of drift gravels. A large and well-marked outlier is found south of Hungerford, which is capped by London Clay at Bagshot, near Shalbourn; here the underlying Cretaceous beds have a sharp dip to the north. Southwards of Reading the outcrop of the Reading Beds continues about half a mile wide through Sonning and the Walthams, towards or as far as Shoppenhanger's Farm and Philbert Lodge near Bray. A small belt is found on the south side of the Chalk inlier, on which Windsor Castle is built. At Twyford they are much obscured by drift gravels. About Reading they are largely worked at Coley Hill and Katesgrove, &c. The plastic clays are made into drain-pipes and tiles, and the sands are mixed with the clay to make bricks.

Between Twyford and Maidenhead there are several important outliers on the Chalk, as near Wargrave and Cookham Dene. The Wargrave outlier consists of a widespreading mass of the Reading Beds, with two thick outliers of London Clay, which form the hills of Ashley and Bowsey: these hills are capped with pebble gravel, while flints are found on Cookham Dene. At Crazey Hill the Reading Beds consist of light-coloured sands, plastic clay, and the 'bottom bed' composed for the most part of laminated clay.

The varied soils formed by these Reading Beds necessarily give rise to a varied vegetation, which includes several local species; but the beds are much broken up, and are not continuous, but scattered over a considerable portion of the central and southern parts of Berkshire, so that it would be by no means easy, even if desirable, to keep their flora apart from that of the other members of the Tertiary beds. The extensive deposits of drift gravels with which they are covered also increase the difficulties of keeping the flora of the 'Reading Beds' distinct. One must content oneself by saying that where the 'plastic clay' is the predominating surface, there plants which prefer an argillaceous soil will be found, so that *Carex vesicaria* appears in ponds on the clay of 'the bottom bed,' near Marlstone: in Oare Woods *Carex*

pallescens is to be found. South of Newbury, in ponds, *Mentha Pulegium* occurs along with *Ranunculus hederaceus*; at the base of the Wargrave outlier is a marshy spot which gives a home for *Carex paniculata*, &c. On the sandy portions of the beds sand-loving plants are necessarily to be found; in such situations *Filago apiculata*, *Erigeron acris*, *Trifolium arvense*, *T. striatum*, *Hieracium boreale*, *H. sciaphilum*, &c. occur. Perhaps, however, the more interesting flora is to be found on the 'drift gravels' covering the Reading Beds, on which grow many rare and interesting plants. Among such species are *Potentilla argentea*, *Trifolium scabrum*, *T. striatum*, *T. subterraneum*, *T. arvense*, *Dianthus Armeria*, *Jasione*, *Anthemis nobilis*, *Erythraea pulchella*, &c.

The London Clay is a thick mass of clay, of a bluish or greyish colour, but weathering brown on the surface, very uniform in its character throughout its whole thickness (which in some places is as much as 400 feet) and over its whole range. It contains bands of septarian nodules of clayey limestone. At its base is a peculiar bed known as the 'Basement Bed,' which consists of rounded flint pebbles embedded in green and yellow sand, locally cemented by carbonate of limestone into hard tabular slabs.

The outcrop of the London Clay in Berkshire is a broad one. The range of hills from Cold Ash Common to Mare's Ridges consists greatly of this formation, and there are two brickyards in it in the district west of Englefield. Near Frilsham is another outlier, in which the Basement Bed is exposed to the west of Frilsham House. On the large outlier at Tilehurst the deposit is 100 feet thick. Near Newbury, at the Shaw brickyards, a good section is exposed.

North of the Kennet there are several outliers of London Clay, among them a small piece resting on the Wickham outlier of the Reading Beds; others occur on the same beds at Snelsmore, Oare, Yattendon, and on a large area of Bucklebury Common, where the clay is much obscured by drift gravels. South of the Kennet the London Clay is more continuous, especially along the southern slope of the Kennet valley from Crookham nearly to Reading. The large and interesting area about Burghfield, Mortimer, Shinfield, Swallowfield, &c., and the country immediately bordering the Emborne stream, is of the same formation, but a great proportion of its surface on the south of the Kennet is concealed either by the over-lying Lower Bagshot Beds, or by drift gravel which is deeply spread over its surface in many places. The London Clay occupies a wide area between Reading and Windsor. The country is often flat, but the well-marked range of hills on the south near Binfield, Winkfield, Warfield, and Snow Hill in Windsor Great Park, belong to the same formation. On the Chalk between Wargrave and Maidenhead are some interesting outliers of the Tertiary group; these have their base

composed of the Reading Beds, but on this rests a thick deposit of London Clay. This latter forms Bowsey, Ashley, and Crazey Hills, where the London Clay attains its greatest altitude in the county, namely 454 feet on Bowsey Hill. These hills form striking objects which can be seen for many miles off, and are rendered more conspicuous and beautiful from their being covered with wood up to the top. Both Bowsey and Ashley Hill are capped with pebble gravel.

The vegetation of the London Clay is rendered more varied than it otherwise would be by the drift deposits of gravel, and by the peaty growth with which it is in places overlaid. Its situation in many cases at the base of the Lower Bagshot Sands again helps to increase the variety of species. *Equisetum sylvaticum*, *Carex pallascens*, *C. elongata*, *C. elata*, *Osmunda*, *Pulicaria vulgaris*, *Scutellaria minor*, *Drosera longifolia*, *D. rotundifolia*, *Narthecium*, *Scirpus caespitosus*, *Bidens cernua*, *Polygonum minus*, *P. Bistorta*, *Rosa systyla*, *Viola lactea*, *Mullegrana*, *Centunculus*, *Sieglelingia*, *Polygonatum multiflorum*, *Scirpus fluitans*, *Epilobium roseum*, *Typha angustifolia*, *Oenanthe crocata*, *Oe. Phellandrium*, *Orchis latifolia*, *Hottonia*, *Carex pulicaris*, *C. flava*, *C. echinata*, *C. paniculata*, *C. resicaria*, *C. Pseudocyperus*, *Mentha Pulegium*, *Alopecurus fulvus*, *Juncus compressus*, *Ranunculus sceleratus*, *Daphne Mezereum*, and *Potamogeton fluitans*, have been found on it, but the occurrence of many of these species appears to be independent of geological causes.

Bagshot Beds. In its upper part the London Clay grows sandy and passes up into a very variable group to which this name has been given. It consists of alternations of sands, greensands, pebble beds, and clays, and is subject to many local variations in composition as it is traced from place to place. This formation tends to form sandy, barren, and heather-clad hills. Its junction with the London Clay is marked by springs, the water of which has percolated through the porous Bagshots till it is thrown out by the impervious clay on which they rest.

The Bagshot Sands form the high grounds of Cold Ash Common, Hartshill, and Bucklebury Common, which are thickly covered with drift gravels. South of the Kennet the Bagshot Beds extend from Inkpen Common, by Pebble Hill and Newbury Wash to Greenham and Crookham Commons, and the commons of Brimpton, Tadley, Silchester, and Burghfield. Here a gap ensues, the beds having been removed by denudation in the valley of the Loddon; they reappear, however, near Risely Common, and the main mass rises up to form the beautiful Finchampstead Ridges, and covers a considerable tract of the country which extends from Wokingham and Sandhurst to Ascot Racecourse, Sunninghill, Blacknest, and the border of Virginia Water. The more clayey beds in the neighbourhood of Wellington College, Broadmoor Bottom, and the boggy part between Easthamp-

stead Plain and Sunningdale Station are Bracklesham Beds. The elevated ground of Caesar's Camp, Wickham Bushes, Easthampstead Plain, Tower Hill, &c., belong to the Upper Bagshot Sands and are often covered with pebble drift. In the Windsor district the Lower Bagshot Beds occur about Cranbourn Lodge; in Cranbourn Wood the stream has cut through them to the London Clay. The Bagshot Beds are also seen at Park Place, Cumberland Lodge, Cooper's Hill, &c. The outlier at Farley Hill has the junction with the London Clay shown by a series of springs.

A very interesting flora occurs on the great tract of heathlands, pinewoods, numerous and rather extensive bogs, and open commons which is formed of the Bagshot Beds.

The dry gravelly commons produce *Cerastium quaternellum*, *Erica cinerea*, *Calluna*, *Stellaria graminea*, *Cerastium arvense*, *Hypericum pulchrum*, *H. humifusum*, *Hieracium boreale*, *H. umbellatum*, *H. sciaphitum*, *H. rigidum*. (var.) *Erythraea Centaurium*, *Hypochoeris glabra*, *Teesdalia nudicaulis*, *Filago minima*, *Gnaphalium sylvaticum*, *Anthemis nobilis*, *Myosotis cellina* and *M. versicolor*, *Malva moschata*, *Aira caryophyllea*, *A. praecox*, *Cytisus scoparius*, *Genista anglica*, *Trifolium arvense*, *T. striatum*, *T. filiforme*, *Viola canina*, *Carex binervis*, *C. pilulifera*, *C. praecox*, *C. leporina*, *Juncoides multiflora*, *Molinia*, *Potentilla procumbens*, *P. argentea*, *Rosa rubiginosa*, *R. micrantha*, a large number of *Rubi*, *Trigonella*, *Ulex (nanus) minor*, *Cuscuta Epithymum*, *Teucrium Scorodonia*, *Rumex Acetosella*, *Plantago Coronopus*, *Galium hercynicum*, *Trifolium filiforme*, *Centunculus*, *Millegrana*, *Agrostis setacea*, *Genista tinctoria*, *Lepidium heterophyllum*, var. *cunescens*, *Viola lactea*, *Nardus stricta*, *Agrostis canina*, *Inula Conyza*, *Epilobium lanceolatum*, *Jasione*, and *Filago apiculata*.

In the more wooded country will be found *Sedum Telephium*, *Vaccinium*, *Pyrola minor*, *Capnoides claviculata*, *Epipactis latifolia*, *Polygonatum multiflorum*, *Lathyrus montanus*, *Melampyrum pratense*, *Dryopteris dilatata*, *D. spinulosa*, *D. montana*, *Polystichum angulare*, *P. aculeatum*, *Blechnum*, *Athyrium Filix-foemina*, *Phegopteris polypodioides*, *Stellaria umbrosa*, *Polygonum dumetorum*, *Campanula Rapunculus*, &c.

The bogs and ponds which are scattered over the area yield *Viola palustris*, *Ranunculus Lenormandi*, *Stellaria uliginosa*, *Montia*, *Hypericum elodes*, *Rhamnus Frangula*, *Peplis*, *Chrysosplenium oppositifolium*, *Apium inundatum*, *Hydrocotyle*, *Potentilla palustris*, *Drosera longifolia*, *D. rotundifolia*, *Bidens cernua*, *Menyanthes*, *Myosotis caespitosa*, *M. repens*, *Myrica Gale*, *Molinia*, *Carex flava*, *C. echinata*, *C. canescens*, *C. pulcaris*, *C. dioica*, *C. rostrata*, *C. Pseudo-cyperus*, *Potamogeton alpinus*, *P. polygonifolius*, *Scutellaria minor*, *Cnicus pratensis*, *Valeriana dioica*, *Gentiana Pneunomanthe*, *Narthecium*, *Epilobium palustre*, *Rhynchospora*, *Schoenus*, *Scirpus caespitosus*, *S. pauciflorus*, *S. fluitans*, *Eriophorum angustifolium*, *Illecebrum verticillatum*, *Pilularia*, *Oenanthe crocata*, *Erica Tetralix*, *Lycopodium inundatum*, *Nitella translucens*, *N. opaca*, *Chara fragilis*, *Juncus bulbosus (supinus)*, *J. squarrosus*, *Veronica scutellata*, &c.

In the cultivated fields have been found *Silene anglica*, *Filago apiculata*, *Myosurus*, *Arnosericis*, *Anchusa officinalis*, *Mercurialis annua*, *Jasione*, *Apera Spica-venti*, &c.

The enumeration of the stratified rocks of Berkshire may be considered to come to an end with the Bagshot Sands. Mr. Harrison points out that if a boring were made near Easthampstead Plain it would pass through many of the formations here described, till at a depth of about 2,000 feet it would touch the first which was mentioned, namely the Oxford Clay.

It will be well to allude in passing to the Sarsen Stones, or as they are sometimes called the Grey Wethers, from a fancied resemblance when seen from a distance to a flock of sheep. They are blocks of sandstone or conglomerate, and are found most frequently on the Chalk; they are now generally considered to be fragments of some of the Tertiary strata which once covered the district where they occur. These harder portions remain while the softer part has been entirely washed away. The blocks are often of considerable size; in some cases, as at Avebury in Wiltshire, they are as much as twelve to fifteen feet across and about four feet thick. They are frequently found in villages, where they may be sometimes seen placed against the corners of houses to protect the walls from passing vehicles; such a stone occurs at Thatcham. The 'Nymph' or 'Imp' stone near Silchester is a Sarsen stone; its name may be derived from the letters 'imp,' meaning Imperator, or from a figure of a nymph which may have been carved on it. It is a milestone of great antiquity on the Spinae road near Silchester.

Another celebrated Sarsen stone is the 'Blowing Stone' near Kingstone Lisle, not far from the White Horse. It is about three feet high, pierced with several natural holes, one of which, beginning at the top and issuing at one side, can by a practised blower be made to produce an alarm note, sufficiently loud to be heard under favourable conditions as far as Faringdon, six miles away. A considerable number are found in the neighbourhood of Ashdown, near the Wiltshire border. Wayland Smith's Cave, which is doubtless a cromlech with an outer circle, is also composed of Sarsen stones, from which the earth that covered it was removed so long back as A.D. 955, since in a charter of Edred it is referred to as Welland's Smithy.

Deposits of Post-Tertiary Age. The rock-groups, which have been so far described, form so to speak the solid framework of the land; whichever of them is at or nearest to the surface in any district may be spoken of as the 'bed-rock' of that district. Over a large part of the county they are covered by only a thin layer of soil, which is itself made up mainly of the débris of the rock beneath. In such a case it is the character of this rock that determines the nature of the

surface soil, and influences the vegetation. Moreover, these groups lie one above another in an order which is always the same. But in other cases there lie above the bed-rock accumulations of sand, gravel, or clay, which may be distinguished as Superficial Deposits. These rest sometimes on one and sometimes on others of the group of stratified rocks, from the oldest up to the youngest, and are therefore later than the newest of the stratified formations. Though nowhere reaching any great thickness, they are often thick enough to be the determining factors in fixing the character of the soil and of the plants that grow on it. This fact has been mentioned in passing several times, and in the case of the Chalk the Superficial Deposits have been described at some length.

It is time now to say a word about the other members of the group. A large number of these may, from the point of view of the botanist, be conveniently classed together, because they are mainly gravelly in character. All are certainly younger than the Bagshot Beds, and it is likely that all are Post-tertiary, but it is not possible to fix more closely the date of many of them. In some cases the pebbles or angular fragments which they contain are mainly of flint; in other cases they include rocks that have come from a distance, such as Quartzite, White Quartz, and Igneous Rocks. Frequently they occur as cappings to hill-tops, but they are not confined to such situations.

In the neighbourhood of Oxford these deposits make no marked feature in the contour of the country, but they are found on much of the higher ground. Wytham Hill, the north side of Cumnor Hurst, Bagley Wood, and other places, have a pebble drift, largely composed of Quartzite similar to that which forms the conglomerate beds of the New Red Sandstone. A coarser drift, containing large masses of Quartzite, Gritstone, and Felstone, with fragments of Porphyry, Gneiss, and Red Quartzite, also occurs. Gravels also belonging to this series cover the ground between the Thames, Kennet, and Pang, as at Cold Ash, Frilsham, and Yattendon, and there is a thick deposit of them on the common of Bucklebury, forming the crest of the hilly ground and capping the Lower Bagshot Sands. Many of the other outliers of the Tertiaries in the neighbourhood of Newbury are also capped with these gravels, as Snelsmore, Curridge, &c. South of the Kennet they are found spread over the large commons of Greenham, Crookham, the high ground about Enborne, and Newbury Wash. The gravel covering the Lower Bagshot Beds at the north-west corner of Inkpen Common is remarkable for the numerous blocks of Sarsen stones which are irregularly scattered through it. At Pebble Hill near Kintbury there are ten feet of rounded black pebbles imbedded in yellow sand; the extreme western outlier of the Tertiaries near Shalbourne is also capped with pebble gravel. A similar formation

overspreads the Bagshot Sands from Sulhampstead Abbots to Silchester, and is found on the hill-tops eastwards, where it rests on the London Clay at Spencer's Wood Common, on the Lower Bagshot Beds at Farley and Heckfield Hills, and on the Bracklesham Beds at Bramshill. Finchampstead Leas and Shinfield Green are also covered with gravels. In fact, the hilly ground of the Bagshot Beds is generally capped with thick layers of gravels richly stained with iron, which has hardened the lower strata into a conglomerate mass to which the name of 'pan' is locally applied. This hard material influences the character of the plateaux of the district where it occurs.

These gravels are covered with a rather varied flora. The plants found on them have been already mentioned in connexion with the underlying strata.

High-Level and Low-Level Alluvium. Where rivers flow with a gentle fall across flat country, they are usually margined by tracts of flat meadow land, which are composed of materials carried down by the streams, and dropped whenever a slackening of the current prevented the matter being carried further. Such deposits are known as 'Alluvium.' They may be gravelly, loamy, or clayey. Their component materials are such only as are found within the base of the river which they adjoin. Thus in the alluvial deposits of the Thames about Oxford the pebbles of the gravels are mainly of the Jurassic rocks across which the river has run in the part of its course above that city, and the only foreigners are such as have been derived from gravels of older date.

The alluvial deposits which immediately adjoin the streams, and are now in the process of formation, are distinguished as Low-level or Valley Alluvium. But we frequently find patches of deposits, obviously alluvial in character, at various and sometimes considerable heights above the present stream. The present-alluvial flat is bounded by a sharp rise in the ground; on mounting this we find ourselves on another spread of flat ground covered by alluvial deposits. Sometimes on ascending the sloping sides of the valley we encounter other such flat patches also covered by alluvium. In fact, the flanks of the valley do not rise with a uniform gradient, but are interrupted at intervals by terraces which on examination are found to be covered by alluvium, and each terrace on one side has a terrace to match on the other side at a corresponding height above the present stream.

It is evident that the stream once flowed at the level of the highest terrace, and was margined by a sheet of alluvium such as overspreads the bottom of the valley. After a while it began to cut down its channel, and in doing this swept away the great part of this alluvial flat, leaving only the fragments which now survive in the terrace.

Then a while later the river ceased to excavate, and ran at the lower level it had reached long enough to develop a second alluvial flat. When deepening was resumed, most of this was carried off, there remaining only the patches that are seen in the terraces next below. And so the process went on.

The alluvium of these terraces is styled High-level Alluvium. Examples are to be found close to Oxford, the city itself being built upon a terrace which is some 20 feet above the present alluvial flat and is covered by gravel from 8 to 16 feet thick. A corresponding terrace is found on the Berkshire side of the stream at Wytham and North Hinksey. In this deposit about Oxford abundance of fossils derived from Jurassic rocks have been found. Bones of the mammoth, rhinoceros, hippopotamus, ox, and deer occur in it, while at Wolvercote, in a still higher terrace, worked flints have been found. At Culham a broad expanse of this gravel rests on the Gault, Greensand, and Kimeridge Clay, and remains of *Elephas antiquus* have been found in it. The Low-level Alluvium occurs very extensively about Abingdon and Radley, at Clifton Hampden, Wittenham, Wallingford, Reading, Henley, and Aston; a considerable breadth of gravel occupies the valley at Culham Court, near Hurley, and reaches to the cliff-foot at Bisham, while from Cookham to Maidenhead it is widespread and of a most interesting character. It occurs also between Maidenhead and Windsor, and on the east side of the Loddon for two or more miles south of Twyford. About Ruscombe it forms a higher terrace, and is seen along the course of the Kennet, having a thickness of 24 feet at Newbury and extending as far as the eastern foot of Enborne Hill. The level country to the north-east of Burghfield is also covered with it. In the Hurley gravel many remains of mammalia have been found. Here it is largely composed of flints with chalk fragments, and, just as the fragments of the Oolitic rocks found in the Hinksey gravel give a soil suitable for *Bromus erectus*, so these fragments of chalk in the Hurley gravel are the inducing cause for the continued presence of *Campanula glomerata* and *Scabiosa Columbaria*, which grow in the meadows to which the river floods have carried the seeds. At Newbury, where the gravel also contains Chalk, the occurrence of *Anthyllis Vulneraria*, of *Picris Hieracioides*, and of *Inula Conyza*, is owing to the presence of the calcareous rock. On the gravels near Maidenhead similar plants are found.

Among the more interesting species found on the High-level Gravels may be mentioned *Potentilla argentea*, *Lactuca virosa*, *Trifolium arvense*, *Viola canina*, *Trifolium striatum*, *Ornithopus perpusillus*, *Rosa systy'a*, *Erigeron acre*, *Filago apiculata*, *F. minima*, *Calamintha arvensis*, *C. officinalis*, *Salvia Verbenaca*, *Linaria repens*, *L. viscida*, *L. Elatina*, *L. spuria*, *Myosurus*, *Orobancha major (elatior)*, *Verbena*, *Astragalus glycyphylus*, *Arabis perfoliata*, *Arenaria*

tenuifolia, *Verbascum nigrum*, *Papaver hybridum*, *Cerastium arvense*, *Spiraea Filipendula*, *Saxifraga granulata*, *Scabiosa Columbaria*, *Orchis morio*, *Allium vineale*, *Avena pubescens*, *A. pratensis*, *Brachypodium pinnatum*, *Sagina nodosa*, *Peplis*, *Trisetum pratense*.

There is no great development of Low-level or Valley Alluvial deposits in the Berkshire portion of the upper part of the Thames Valley, but the junction of the Ock with the Thames is marked by a wide expanse of alluvial meadows. These are present on a smaller scale at Sutton Courtney, Wittenham, Basildon, and Pangbourn, where, as on the Ock, the alluvium consists principally of silt. The Pang stream near Bucklebury runs through alluvial fields formed of peat, and peaty clay above silt; along one of the watercourses which runs through the alluvium the bottom is covered with spherical calcareous concretions, half an inch to one inch in diameter. It is on the banks of the Kennet that the deposits of alluvium reach their greatest development and become of a most interesting character. This well-marked deposit is the origin of the celebrated irrigated water-meadows of the Kennet, which are situated upon alternate beds of peat, clay, and shell marl, the last substance being made up of the debris of fresh-water shells belonging to still living species. The deposit of peat occurs as a strip varying from a quarter of a mile to one mile in width, with a thickness of from 5 to 15 feet. It contains branches of trees, fir-cones, nuts, and seeds—in fact, remains of the oak, alder, willow, fir, birch, hazel, with mosses, reeds, and horsetails. Among the animal remains have been recognized the bones of the red deer, the wolf, the beaver—Beaver Island is named on a map of the Kennet—badger, otter, bear, roe-deer, wild boar, *Cervus elephas*, *Bos primigenius*, *B. longifrons*, &c. With these have also been found a human skull of high antiquity accompanied by rude instruments.

The peat has been extensively dug for fuel in the neighbourhood of Newbury, and the ashes form a valuable fertilizer, probably owing to the many crystals of selenite contained in the peat. During the recent drainage operations at Newbury I noticed a considerable quantity of pinewood in the peat which was being exposed, together with what was probably the remains of sedge vegetation.

By the Lambourn, near the villages of the Sheffords, there are peaty deposits, which were dug for fuel about a century since.

The alluvial meadows possess a flora which, though perhaps not very rich in specific forms, includes many interesting species, and individuals of more common kinds in countless numbers. Among the plants which are most characteristic are *Thalictrum flavum*, *Ranunculus Lingua*, *R. hederaceus*, *R. Drouetii*, *R. trichophyllus*, *R. sceleratus*, *Caltha*, *Roripa sylvestris*, *R. palustris*, *R. amphibia*, *Barbarea Vulgaris*, *Cardamine amara*, *Brassica Rapa*, *Viola canina*, *Polygala vulgaris*, *Stellaria palustris*, *S.*

aquatica, *Hypericum acutum*, *H. quadrangulum*, *Geranium pratense*, *Ononis spinosa*, *Melilotus officinalis*, *Sagina nodosa*, *Lotus uliginosus*, *Geum rivale*, *G. intermedium*, *Poterium officinale*, *Saxifraga granulata*, *Hippuris*, *Lythrum Salicaria*, *Epilobium parviflorum*, *E. hirsutum*, *E. tetragonum*, *E. palustre*, *Hydrocotyle*, *Conium*, *Apium nodiflorum*, *Sium latifolium*, *S. erectum*, *Oenanthe fistulosa*, *Oe. silaifolia*, *Oe. crocuta*, *Silaus*, *Angelica*, *Viburnum Opulus*, *Galium palustre*, *G. uliginosum*, *Valeriana dioica*, *V. officinalis*, *Bidens cernua*, *B. tripartita*, *Petasites*, *Hottonia*, *Lysimachia vulgaris*, *L. Nummularia*, *Menyanthes*, *Symphytum officinale*, *Myosotis palustris*, *Cuscuta europaea*, *Mimulus*, *Veronica scutellata*, *V. Anagallis*, *V. Beccabunga*, *Pedicularis palustris*, *Rhinanthus*, *Mentha aquatica*, *M. verticillata*, *Lycopus*, *Scutellaria galericulata*, *Atriplex deltoidea*, *Polygonum Bistorta*, *P. minus*, *P. mite*, *P. maculatum*, *P. amphibium*, *Rumex maritimus*, *R. Hydrolapatheum*, *Humulus*, *Alnus*, *Salix purpurea*, *S. fragilis*, *S. viridis*, *S. triandra*, *S. viminalis*, *S. cinerea*, &c., *Populus alba*, *P. canescens*, *P. nigra*, *Hydrocharis*, *Orchis latifolia*, *O. incarnata*, *Iris Pseudacorus*, *Leucojum aestivum*, *Allium vineale*, *Fritillaria*, *Typha angustifolia*, *T. latifolia*, *Sparganium erectum*, *S. neglectum*, *Acorus*, *Butomus*, *Triglochin*, *Eleocharis acicularis*, *E. palustris*, *E. neglectum*, *Scirpus setaceus*, *S. lacustris*, *S. caricis*, *Carex dioica*, *C. pulicaris*, *C. disticha*, *C. paniculata*, *C. vulpina*, *C. remota*, *C. acula*, *C. flacca*, *C. panicea*, *C. distans*, *C. riparia*, *C. acutiformis*, *C. vesicaria*, *C. rostrata*, *Phalaris*, *Agrostis alba*, *Phragmites*, *Catabrosa*, *Glyceria plicata*, *G. aquatica*, *Festuca rubra*, *F. elatior*, *F. arundinacea*, *Bromus erectus*, *B. commutatus*, *B. racemosus*, *Lolium perenne*, *Hordeum bulbosum*, *Equisetum palustre*, *E. limosum*, and *Ophioglossum*.

THE RIVER DRAINAGE OF BERKSHIRE.

Berkshire is entirely contained in the Thames basin, the area of which, according to the Report of the Rivers' Commission, is about 5,162 square miles, or over 3,300,000 statute acres. The greatest length of the basin, according to the same report, is from Trewsbury Mead in Gloucestershire to the estuary; its greatest breadth from Prior's Marston in Warwickshire to Fernhurst in Sussex, fifteen counties being partly or entirely included in it.

The Thames¹ takes its rise near the 'Foss Road' from the Oolitic limestone rocks of the Cotswold Hills, the escarpment of which is the western boundary of the basin. The reputed source of the Thames is in Trewsbury Mead, about three miles south-west of Cirencester. In a valley now commonly dry, but still occasionally too full of subterranean water to be always dry, rose from immemorial time the clear, full, bright source of the Thames, till, in the latter part of the last century, the Thames and Severn Canal drank up the river to feed its thirsty

¹ 'Tamesis fluviorum omnium, qui Britanniam alunt, facile princeps mihi in mentem venit,' Leland, *Praefatio in Cygn. Cant.*

navigation on the summit level; drank it up by means of a steam-engine, which lowered the level of the water-bed in all the adjoining country, so that the natural efflux now takes place half a mile below its former opening. Though diminished and lowered, it still delivers a strong current of sparkling water to a channel almost choked with water flowers¹. 'Thames Head,' which Leland called 'the very head of Isis,' is only 330 feet above the sea level; from this point to the Nore the length of the river is 210 miles. For 110 miles of its course it forms a boundary for the county of Berks. On the extreme north-west it separates Berkshire from Gloucestershire for about two miles, that is, from St. John's Bridge, where was formerly a priory of Black Canons, near Lechlade to Kelmscott (Kenelmescote)². Here Oxfordshire takes the place of Gloucestershire, and the Thames separates Berkshire and Oxfordshire from near Kelmscott in the north-west to Henley in the south-east. At Henley, traditionally the oldest place in Oxfordshire, where the river passes under a handsome bridge of Headington stone, Oxfordshire is succeeded by Buckinghamshire, and the Thames continues to serve as a boundary between the latter county and Berkshire from Henley to Old Windsor, where Berkshire is in turn displaced by Surrey. During its course of 210 miles the Thames is increased by many tributaries. Some of these enter it before it reaches Berkshire; the first, therefore, which it is necessary for us to notice is the Cole, a small stream which joins the Thames at its first point of contact with Berkshire. The Cole issues between Chisledon and Idstone from the Chalk hills of North Wiltshire, the streams from which, in time of heavy rain, carry a considerable volume of water across the Upper and Lower Greensand and the Kimeridge Clay, and meet near the county boundary by Hinton Mill; from this place to the Thames at St. John's Bridge, near Lechlade, a town standing on a tongue of land on the north side of the Thames between the rivers Colne and Leach, the Cole separates Wiltshire from Berkshire, its surface here being 254 feet above the sea level. From St. John's Bridge to Oxford the Thames receives no stream of any importance from Berkshire; but from Oxfordshire it is reinforced by the Charney brook, which drains a portion of flat uninteresting country near Bampton, and by the 'nitrous' Windrush, a stream of considerable charm, the longest affluent of the Thames, which rises like the Thames in the Cotswolds at about 900 feet elevation, and entering Oxfordshire near the old town of Burford, which has a handsome and interesting church, flows by Swinbrook, once the home of the Fettiplaces, and by

¹ Phillips, *Geology of the Thames Valley*, p. 26.

² The Elizabethan manor house was for some years occupied conjointly by D. G. Rossetti and W. Morris, the latter of whom charmingly describes the place in *News from Nowhere*.

the ruins of Minster Lovel and its picturesque church, a fine specimen of perpendicular architecture, to Witney, whose ancient industry was fostered by its waters, and then passing to tamer and less interesting scenery enters the Thames near Cokethorpe after a course of more than 30 miles. Near Cassington, the Evenlode¹ brings in its turbid waters, gathered at its commencement from a wide tract of Lias, which forms an obscure and low and not very easily recognizable watershed between the Thames and Severn, about 450 feet above the sea, between the 'mercat' town of Stow and Icomb in Gloucestershire. The Evenlode runs its course of nearly 30 miles in winding sweeps, whose general direction is almost parallel to that of the straighter stream of the Windrush; it passes by Churchill, the birthplace of Warren Hastings and of William Smith the geologist, washes the ruined Cistercian monastery of Bruern Abbey, glides under the once extensive forest of Wychwood, and in its course by Stonesfield quarries to Handborough, passes through well-wooded and picturesque country, itself lending a great charm to the scene by its beautiful curves bordered by terraced slopes, whose hanging woods are here and there adorned with the pencilled flowers of the wood-vetch or starred with the rare *Gagea*. Having received two small streams from the north, the Evenlode flows by Church Handborough and Cassington, once the home of the Northumberland Percys, into the Thames at 203 feet above the sea. From this spot the Thames turns in a bold sweep to the northwards round the beautiful woods of Wytham, and on reaching Yarnton again turns southwards to Wolvercote, where Mr. Stacey estimated the dry weather summer flow of its waters to amount to 11,620, and its dry weather winter flow to 22,624 cubic feet per minute, while its rainy weather winter flow reached to 35,498, and during flood-time to 70,996 cubic feet per minute. At Oxford, the Thames receives another important tributary from Oxfordshire, namely the Cherwell, which has a catchment basin almost equal in area to that of the Thames above Oxford, that is, nearly 600 square miles, so that Mr. Stacey's figures may be nearly doubled for the amount of water passing Iffley. The Cherwell rises in Northamptonshire near Charwelton, on the elevated table-land of Lias, which is capped here and there with outliers of Oolite, and from which springs send their waters respectively to the German Ocean, the English Channel, and the Bristol Channel. The height of the watershed of the Cherwell and the Leam is about 450 feet. In the course of the Cherwell to Oxford it receives many small tributaries, which have cut their way down to the Lias; near Enslow Bridge it enters the range of the Oolites for about three miles, after which its channel is in the Oxford

¹ In early charters this stream was called Bladaen, doubtless from the village of that name near its mouth.

Clay until it is received by the Thames at Oxford at the height of 190 feet above sea level.

At Abingdon, the Thames is replenished by the *Ock*, a purely Berkshire watercourse, whose numerous sluggish streams, excavated for the most part in the Kimeridge Clay, drain the Vale of the White Horse, which extends from Faringdon—a picturesque town seated amidst banks of Coralline Oolite and Kimeridge Clay, capped here and there by sandy hills and broad floors of shelly gravels—to Longcote eastwards and to the Thames.

The *Genge* or *Ginge brook*, a similar but smaller stream, enters the Thames near Sutton Courtney. At Clifton Hampden, with its beautiful church, the Thames flows past bold cliffs of conglomerate formed by the Greensand to Dorchester, the site of the Roman camp Durocina (itself occupying an earlier British settlement), which gave its name to the episcopal see founded by Birinus A. D. 634. Under the wall of the magnificent church flows the Thame, which rising in the high ground of Quainton and Brill and the escarpment of the Lower Chalk near Tring in Buckinghamshire, drains in its flexuous course a very similar tract of Oxfordshire country to that drained by the Ock in Berkshire, and reaches the Thames a little way below Dorchester, opposite the Chalk outliers called the Wittenham Clumps, where the river is 169 feet above the sea.

At historic Wallingford the Thames, now flowing through cretaceous rocks, which it traverses nearly at right angles to their strike, receives the *Moreton brook*, which drains the district around Blewbury in Berkshire; from thence it continues its southern course, winding among softly swelling hills of Chalk in a narrow and beautiful green valley adorned with fine elms, and receiving on its way to Reading one small stream only, the *Pang*, so named, it is said, from a Saxon word signifying pain, on account of the hardness of its waters. This stream springs from the Upper Chalk near Hampstead Norris, and drains a small, but most interesting, portion of the county from ancient Iisley, Chieveley, and the pretty parish of Hermitage in the west, to the great common ground of Bucklebury and Sulham's lovely woods in the south, and the village of Pangbourn, beloved by artists, where its clear, bright water mingles, at a height above sea level of 144 feet, with the greener coloured Thames, which now passes by Maple Durham's charming mill and the Elizabethan mansion of the Blounts, to the busy town of Reading, where, at a height of 123 feet above sea level, it receives an important feeder in the Kennet. '*The Kennet* swift, for silver eels renowned,' rises on the high ground between Swindon and Calne in Wiltshire, where the lowest parts of the watershed are more than 500 feet above the sea. In its early course it receives the Winterbourne and other small streams, and at Marlborough

the Ogbourne, and shortly after the Aldbourne, so that it is a considerable stream when it enters Berkshire near Hungerford. It then runs in a nearly straight course, whose direction is west to east, draining the synclinal Chalk which rises in the north to a height of 840 feet at the White Horse Hill, and in the south, at Walbury Camp, to a height of 957 feet, the escarpment on the north side being gentle, while that of the Inkpen range on the south side of the Kennet is very steep. Near Newbury, the river discloses a considerable surface of peat resting on layers of gravel and sand—a mark of stagnant water; in the Eocene valley of Newbury, at an elevation of 254 feet above sea level, it is reinforced by the *Lambourn*. This purely Chalk stream rises in the Lambourn downs, and has a rapid, and in many places a picturesque course of about 16 miles by the Sheffords, 333 feet above the sea, and by Welford (the Willow ford) to Newbury. From this ancient town to Padworth the Kennet, here 180 feet above sea level, flows through Eocene strata, and is bordered by irrigated meadows and frequent reed-beds; on the south, the well-wooded estates of Wasing and Aldermaston stretch for some distance, while the slopes on the north by Thatcham and Bucklebury Common are also interesting. *The Emborne*, or *Auborne*, rises in the Chalk near Inkpen in Berkshire, but soon becomes the boundary between Hampshire and Berkshire for about ten miles, from Redhill to Holt Common, when it takes a northerly direction and falls between Brimpton and Wasing into the Kennet. In its course it drains the great heathy commons of Greenham and Crookham, where it is a pretty stream.

Another brook, coming from Aldermaston and Mortimer, drains a small part of the country south of the Kennet from these places to Reading. The Kennet, as it passes towards the end of its course by Theale and Southcote, is still a pleasant stream; but it then loses its country charm, and entering the populous town of Reading, passes into the Thames, which now flows through a broader valley where the hanging woods of Sonning¹ border the Berkshire side of the stream, and passes under the very ancient bridge to Shiplake², situate on an abrupt cliff. Here the river displays one of its finest bends; at Shiplake Lock it receives the Loddon, here divided into several branches, whose banks are adorned with the lovely *Snow-flake*, *Leucojum aestivum*.

'*The Loddon* slow, with verdant alders crowned,' rises in Hampshire, near Ramsdell and Basingstoke, and enters Berkshire near the seat of the Duke of Wellington at Strathfieldsaye. Shortly after, near Swallowfield, once the home of Lord Chancellor Clarendon, and where

¹ Leland describes Sonning 'as an upland town set on fair and commodious ground, beneath which the Tamise runneth in a pleasant vale.'

² Alfred, Lord Tennyson, was married here.

he wrote the greater part of his *History of the Rebellion*, it receives another Hampshire stream, the Blackwater, which is in part derived from a Surrey source. The Blackwater reaches Berkshire at the village of the same name, and separates the county from Hampshire as it flows under the beautiful Finchampstead Ridges, the large Hampshire commons of Bramshill and Risely, and the smaller but still interesting Finchampstead Leas, and after draining the sandy hill of Farley, passes through Swallowfield into the Loddon. From this point the Loddon pursues its course past the pleasant village of Arborfield in a reach of great beauty, bordered, as Pope says, with verdant alders, to Loddon Bridge and Sandford Mill, where it drains the once celebrated botanical locality called Coleman's Moor, and receives the Emme brook, which on its way from its source in the Bagshot Sands passes through the interesting district of Wokingham, once a part of the great forest of Windsor. Shortly below Sandford Mill, near Twyford, the Loddon receives the Broadwater, as it is euphemistically called, which, in its devious course, drains a portion of the Old Forest district of Windsor, and creeps slowly by Binfield, Waltham, and Ruscombe. At Shiplake the Loddon enters the Thames, which then flows past the beautiful grounds of Park Place, situated on a chalk hill nearly 300 feet above the river, and reaching Hambledon, receives a small stream from Buckinghamshire; and passes by Hurley 'in that beautiful valley through which the Thames, not yet defiled by the precincts of a great capital, nor rising and falling with the flow and ebb of the sea, rolls under woods of beech round the gentle hills of Berkshire.' From Hurley, the Thames pursues its course to the Priory of Bisham, where Elizabeth spent three years in enforced retirement, and where the conventual barn, built of Spanish chestnut, is still to be seen; and thence past Great Marlow to the most beautiful reach overshadowed by the far-famed woods of Cliveden or Cliefden, once the home of the historic Duke of Buckingham, and to Taplow's fine demesne and the picturesque village of Cookham. Between Cookham and Maidenhead it receives the White brook, a small Berkshire watercourse, whose slow anastomosing streams can scarcely be said to drain the meadows about Cookham. Beyond Maidenhead, only 84 feet above the sea, two similar streams, one from Buckinghamshire, the other from Berkshire, enter the Thames, the latter near Boveney. The Thames then approaches the regal pile of Windsor and the classic walls of Eton, and bending round Windsor's stately park, and passing Datchet Mead, it flows by Old Windsor, and at length leaves the county of Berks, after a devious course of 110 miles.

The only remaining portion of Berkshire to be mentioned is a small bit of Bagshot Heath and the beautiful country near Virginia Water, which, with some parts of Windsor Forest, are drained by a small

stream, which soon enters Surrey, and after a course of a few miles falls into the Thames below Chertsey.

THE BOTANICAL DISTRICTS.

From the manner in which the Thames serves as a boundary to Berkshire on the northern and eastern side, considerable difficulty has been met with in dividing the county into botanical districts, which shall be representative of the streams by which they are drained. Various plans have been considered, and much may be said for and against those which have been examined and rejected. The following arrangement, which has been finally chosen, is by no means free from objections, but it appears on the whole preferable to any, except one in which a very large number of districts would have to be employed, and such a plan it did not seem desirable to adopt in a county of so small an area as Berkshire. Several friends have urged the desirableness of making the districts purely artificial, a plan followed by Mr. Britten in his *Contributions*, but almost all our recent Floras have made the river-basins the basis for the division of the areas they treat of into districts. A second series of advisers strongly recommended the adoption of districts based on the various geological formations, and this plan commended itself to the author until he attempted to put it into practice. The objections to it need not be given at length, but the influence of the great extent of drift deposits was one of the chief reasons which led him to give up the idea of basing the districts upon the geological strata, and to adopt the system of river drainage as in the Floras of the neighbouring counties, Hampshire, Wiltshire, and Oxfordshire; and as from the two former counties Berkshire receives the Loddon and the Kennet respectively, by adopting botanical districts based upon the river drainage, Berkshire is brought into harmony with its neighbours, and those botanists who are interested in the plant distribution through the smaller river districts of England, may have less trouble in tracing the constituents of each river-flora than would be the case if an artificial or geological basis of division had been followed.

The Botanical districts or divisions of Berkshire that have been adopted are five in number, namely:—

1. **The Isis** or Upper Thames, which corresponds to the district 'Thames 3' of Preston's *Wiltshire Flora*, and to the district '5. Isis or Upper Thames,' of my *Flora of Oxfordshire*.

2. **The Ock**, an entirely Berkshire stream, which has its counterpart in the district '6. The Thame,' in my *Flora of Oxfordshire*.

3. **The Pang** or Mid Thames, which bears considerable resemblance to the district '7. The Thames,' of my *Flora of Oxfordshire*.

4. **The Kennet** and Lambourn, which is the Berkshire continua-

tion of the district of the Kennet numbered 'Thames 4' in the *Flora of Wiltshire*, and of the portion called '12. The Kennet,' in Townsend's *Flora of Hampshire*.

5. The Loddon and Blackwater or the Lower Thames, the Berkshire continuation of the district number '11. The Blackwater,' of the *Flora of Hampshire*, and also a small portion of Berkshire, from which a stream flows into the division 'C' of Brewer's *Flora of Surrey*.

1. The Isis or Upper Thames. This rather small and narrow district consists of two parts: one drained exclusively by the main stream of the Thames, and occupying almost the whole northern side of the county; the other a small strip of unequal width drained by the Cole, and situated on the northern and western side of Berkshire. This latter portion of the country might have been more properly treated as a separate district, since its geological character is very varied, consisting as it does of the Upper and Lower Chalk, the Upper and Lower Greensand, the Gault, the Kimeridge Clay, the Coralline Oolite, and the Oxford Clay. But the third division of the *Flora of Wiltshire* consists of the country drained by the Thames and its tributary the Cole, so that district No. 1, as now arranged, will coincide with the third district of that Flora. The portion of the district drained by the main stream is much less varied in its geological character, since it consists almost entirely of the Coralline Oolite and the Oxford Clay.

The boundary of the district is as follows: from Lechlade to Oxford the Thames divides Berkshire from Gloucestershire on the north, and afterwards from Oxfordshire. The southern boundary, unlike that on the north, is not a natural one; but since the road from Oxford to Faringdon, which passes through the villages of Cumnor, Appleton, Longworth, and Hinton Waldridge is practically on the top of the watershed of the Coralline Oolite ridge for the greater part of the way, this road has been chosen as the line separating this district and that of the Ock, instead of a purely natural drainage boundary, because it gives a definite line which can be easily seen and remembered. A small portion of the north side of the 'fir-topped' Cumnor Hurst, which drains into this district, is disregarded, and is put with the rest of Cumnor Hill in the Ock district. So far, therefore, our frontier-lines have been very simple and easy to trace, the Thames being the boundary on the extreme north and east from Lechlade to Oxford, and the road from Oxford to Faringdon being the southern boundary: from Faringdon south-westwards they are rather more difficult to follow. From Faringdon—where Pye, the Poet Laureate, lived in Faringdon House, which he built, and where he wrote the poem called 'Faringdon Hill,' in which he says, 'White Horse sends presents to the Thames by Ock, her only flood'—to Little Coxwell the boundary

adopted is the turnpike road, and from the latter place the Shrivenham road for two miles south-west, whence the road to Longcott Wharf is followed till it reaches the Canal, which is then taken as the boundary as far as to Chapelwick Farm. From this farm the line is drawn between Odstone and Kingstone Farm to the ancient 'Ridge Road' near Wayland Smith's Forge. The extreme southern boundary for two miles is the same historic highway till it meets the Wiltshire border. The Cole, which drains the extreme western corner of the county, is now the boundary, not only of the district, but also of the county from Hendon Mill to St. John's Bridge near Lechlade, where it meets the Thames. The portion drained by the Cole is, as one might expect from its geological character, very varied in its scenery; the contrast between the elevated bare bleak fields, without trees and almost without hedgerows, near the Ridgeway with its extensive prospects over the Vale of Berkshire, and the sheltered village of Shrivenham, with its well-wooded park and its murmuring brook, and the deep coombes, with the extensive watercress beds of Ashbury and Kingstone, is very marked. Another distinct kind of scenery may be seen at Coleshill, where, in the beautiful park of the Bouverie family, whose mansion is one of the most successful efforts of Inigo Jones, an extensive view is obtained over a gently undulating and well-wooded country, which in turn changes as the Thames is approached to flat extensive alluvial meadow lands, which are characteristic of the valley of the Upper Thames, and, as Leland says, 'are often overflowed with rage of rain.'

This district of the Upper Thames is on the whole a well-cultivated one, heathland and true bogland being almost entirely absent, so that *Drosera*, *Pinguicula*, *Narthecium*, *Erica*, *Calluna*, *Juncus squarrosus*, *Plantago Coronopus*, *Anthemis nobilis*, and *Salix repens* are either very rare or wanting; nor are the natural woods very extensive, the principal being the wooded common of Appleton, Eaton Wood, and Buscot coppices near Faringdon, a few coppices near Cumnor, and the beautiful woods of Wytham near Oxford. The plant localities are therefore scattered over the district, and it may be well to give a short account of the characteristic features of its flora. The meadow land is not of a very varied nature, nor has it many rare plants to render it especially attractive. By the Cole some upland pastures near Watchfield have large quantities of *Ornithogalum umbellatum*, a plant locally known as 'Stars,' which may be really indigenous; the same fields also yield *Allium vineale* and *Allium oleraceum*, the latter sparingly; between Coleshill and Lechlade the meadows have *Fritillaria Meleagris*, and the river for a short space is bordered with *Ribes nigrum*; from Lechlade eastwards to Oxford *Bromus commutatus* is a characteristic plant. The upland grass-fields in this district are often full of *Orchis morio*, but the rare

Carex tomentosa, which is found in several localities in the neighbourhood of Fairford, has, up to the present time, eluded observation on the Berkshire side of the stream. Nearer Oxford, as at Bablock Hythe, *Polygonum Bistorta* occurs, while under Wytham woods the meadows are of a more interesting and marshy nature, and here occur *Menyanthes trifoliata*, *Orchis latifolia*, *Pedicularis palustris*, *Eleocharis multicaulis*, and curiously enough *Viola canina*, other marsh plants being *Valeriana dioica*, *Oenanthe silaifolia*, *Thalictrum flavum*, and *Poterium officinale*. The upper river, which flows through a sparsely populated and very secluded country, although full of vegetation, is not remarkable for any very rare plants, the most interesting being perhaps *Limnanthemum peltatum*, which, however, I have not found beyond Eynsham, and *Nitella mucronata*, which has an even more restricted area, while that very elegant plant, *Sium latifolium*, is found at intervals on its banks throughout its course. The riparian vegetation is profuse, but it consists principally of widely distributed plants, such as *Geranium pratense*, *Epilobium hirsutum*, *E. parviflorum*, *Lythrum Salicaria*, *Volculus sepium*, *Scutellaria galericulata*, *Mentha aquatica*, *M. verticillata* (sativa), *Lysimachia vulgaris*, *L. Nummularia*, *Symphytum officinale*, *Myosotis palustris*, *Iris Pseudacorus*, *Rosa arvensis*, *Rubus caesius*, *Viburnum Opulus*, *Butomus umbellatus*, *Roripa amphibia*, *R. sylvestris*, *R. palustris*, *Barbarea vulgaris*, *Brassica Napus*, var. *sylvestris*, *Chrysanthemum Leucanthemum*, *Galium palustre*, and *Stachys palustris*, which combine to make a varied display of colour, to some extent toned down by the abundance of more sombre-looking plants, such as *Rumex Hydrolapatheum*, *Sparganium erectum*, *Scirpus lacustris*, *Phragmites communis*, *Panicularia aquatica*, *Humulus Lupulus*, *Salix purpurea*, *S. riminalis*, *S. caprea*, and other willows, *Carex riparia*, *C. acutiformis*, *C. acuta*, *Equisetum limosum*, *E. palustre*, and others. The waters are often choked by masses of *Potamogeton interruptus*, *P. pectinatus*, *Ranunculus fluitans*, and by forms of *R. pellatus*; *Potamogeton lucens*, *P. perfoliatum*, *P. natans*, *Myriophyllum verticillatum*, *Chara fragilis*, var. *Hedcigii*, and *Eleocharis acicularis* are also frequent. In the deeper pools the White Water-lily is common, as is also *Nymphaea lutea*. In the shallower parts *Sagittaria sagittifolia*, *Oenanthe fluriatilis*, *Sparganium simplex*, and *Alisma Plantago-aquatica* are not uncommon. More local plants are *Hottonia palustris*, *Hydrocharis Morsus-ranae*, and *Utricularia vulgaris*. *Ranunculus Lingua* and *Menyanthes trifoliata* occur in one or two localities near Wytham; the rarity of the former in this district is rather remarkable. *Echinochloa ranunculoides*, which is abundant in the Thames and Severn Canal, close to its junction with the Thames, does not appear to occur in the Berkshire portion of the river. *Teucrium Scordium*, which used to grow near Eynsham and was found some years ago near Godstow, is now apparently extinct.

Appleton Lower Common, one of the few bits of land which remain

unenclosed, is interesting as being the locality from which *Daphne Mezereum* was first reported, and in which it still lingers, being almost certainly indigenous. In the same locality the primrose has been found from nearly white to pale red in colour, and *Habenaria chloroleuca* is rather frequent. The coppices of Buscot have many interesting plants; those about the house have *Doronicum Pardalianches* quite naturalized. The coppices of Cumnor still yield the local *Gagea* and the curious *Lathraea*, with abundance of *Adoxa* and *Equisetum maximum*. By far the richest spot in the district is Wytham Wood, which is situated on the bold headland of Wytham Hill, round which the Thames sweeps in a curve of great beauty as well as of considerable geological interest. The hill of Wytham, which attains an altitude of 539 feet, was chosen as the site of the castle of Cynewulf, King of the West Saxons, and here, too, was situate a nunnery, founded by Ceadwalla in the seventh century. From various parts of the hill very extensive and charming views may be obtained of Blenheim Palace, the Yarnton meadows, of the spires and towers of Oxford, and of the vale of Eynsham. Most interesting is the variety of its vegetation. The lower portion of Merley Wood is remarkable for the abundance of that most graceful sedge, *Carex pendula*, and for its fine specimens of *Equisetum maximum*; here, too, occurs the local *Paris quadrifolia*. As the Oxford Clay gives place to the Coralline Oolite, *Clematis Vitalba* makes its appearance with *Daphne Laureola*, *Lithospermum officinale*, *Lathyrus sylvestris*, *Vicia sylvatica*, *Astragalus glycyphyllus*, *Euonymus*, *Campanula Trachelium*, and *Poa nemoralis*. On the more open ground *Atropa Belladonna*, *Hyoscyamus niger*, *Helianthemum Chamaecistus*, *Erythraea Centaurium*, *Echium vulgare*, *Myosotis versicolor* and *M. collina*, *Ranunculus parviflorus*, *Sanguisorba officinalis*, and *Inula Conyza* are to be gathered. The ponds and marshy places, which are chiefly on the southern slopes, yield *Samolus Valerandi*, *Pulicaria dysenterica*, *Lysimachia vulgaris*, *Typha latifolia*, *Scirpus pauciflorus*, *Eleocharis multicaulis*, *Calamagrostis epigeios*, *Tolypa a glomerata*, *Chara contraria*, *C. hispida*, *Zannichellia*, *Carex flava*, *C. echinata*, *Menyanthes trifoliata*, &c., while *Hypopitys* and *Cephalanthera pallens*, *Ophrys apifera*, *Habenaria conopsea*, and *Orchis pyramidalis* occur on the higher ground. A fine bush of *Rosa agrestis* was found in one of the rides in 1886. *Rubus radula*, *R. villicaulis*, *R. Balfourianus*, &c., as well as the handsome *Cnicus eriophorus*, are also found. The Ferns include *Dryopteris montana*, *D. dilatata*, *D. spinulosa*, *Athyrium Filix-foemina*, *Ceterach*, *Asplenium Trichomanes*, *A. Adiantum-nigrum*, *Ceterach*, and *Ophioglossum vulgatum*.

The park and ornamental waters of Buscot contain both species of *Typha*, *Castalia*, *Hippuris*, *Myriophyllum verticillatum*, *Ceratophyllum*, *Carex paniculata*, &c. By the roadside between Buscot and Lechlade, *Lotus tenuis* occurs in some plenty; it is a rare plant in Berkshire. The park and lake of Buckland, the latter 258 feet above the sea, afford *Helleborus*

viridis and *Buxus* as naturalized plants. *Ceratophyllum*, *Butomus*, *Typha angustifolia*, *Chara hispida*, with some others, also occur. Pusey Woods have *Echium vulgare*, *Adoxa*, and a growth so profuse as almost to cover the ground for several acres of *Impatiens parviflora*, probably introduced with pheasants' food; the bench mark is 258 feet.

The road to Faringdon, which forms the southern boundary of the Isis district, leaves Oxfordshire at Botley, where the height above sea level is less than 200 feet, and shortly after ascends the stiff slope of Cumnor Hill, which is 411 feet above the sea; from this point some extensive views may be obtained, embracing a large portion of the valley of the Upper Thames, the larch plantations which border the Chipping Norton road near Sarsden, the woods of Blenheim, the grounds of Eynsham and Combe, the spire of Leafield, and the tower of Charlbury. The roadside on this Oolitic soil affords *Trifolium medium*, which appears at about the same altitude on the Abingdon Road on similar ground. *Astragalus glycyphyllos*, *Calamintha arvensis*, *C. montana* (*menthaefolia*), *Cnicus eriophorus*, *Carduus nutans*, *Cerastium arvense*, *Brachypodium pinnatum*, *Bromus erectus*, *Avena pubescens*, &c., are also found. The road at Appleton sinks to 329 feet and again rises to 359 feet at Buckland, reaches its highest point in Berkshire, 448 feet, immediately below the pine-crowned Faringdon Clump, and again dips sharply to the Market Place of Faringdon, which is 332 feet above the sea.

Tubney yields *Verbascum nigrum* and *V. Thapsus*, *Rosa tomentosa*, *R. gaucha*, *Sedum Telephium*, *Rubus dumnoniensis*, *R. diversifolius*, *R. pyramidalis*, &c., *Lathyrus sylvestris*, and *Polygonum dumetorum*, the latter festooning the hedges in the greatest profusion over a considerable distance. At Kingston Bagpuze a plantation affords a rich growth of *Lilium Martagon*.

2. The Ock. This district, which is of considerable size, consists essentially of the Vale of the White Horse; it also includes the north side of the Chalk escarpment, and the whole of the Boar's Hill range. It has for its boundaries on the west and north the district of the Isis or Upper Thames, which has just been described; on the north-east the River Thames, which is the county boundary of Oxfordshire and Berkshire from Oxford to Mongewell; on the south from Mongewell a line, which like the southern boundary of the Isis district, is not a purely natural one, and is also somewhat complex in character. After careful consideration the following scheme has been adopted in preference to any other. According to this determination the southern boundary which separates the Ock district from the third district, the Pang, and the fourth district, the Kennet, is as follows. From Mongewell-on-Thames, 160 feet above sea level, the line follows the road leading to the old station of Moulsoford through Halfpenny Lane to King Standing Hill, 400 feet above sea level; thence it follows the road leading to East Ilsley as far as the Newbury Railway, which

it crosses, and a half-mile beyond reaches the Ridge Road, which is then taken as the boundary between the Ock district and the Kennet valley, since it is practically the watershed, running as it does along the top of the Chalk escarpment all the way to the Wiltshire border.

It has already been stated that the Ock district bears a very noticeable relation to the Thame district of my *Flora of Oxfordshire*, not only in its geological character, but also on account of its scenery and botanical features. The Oxfordshire high ground of Shotover has its counterpart in Berkshire in the Boar's Hill range, and that range, though slightly lower, is richer in its vegetation. The Oxfordshire Chalk hills, which at Beacon Hill rise to 809 feet above the sea, are overtopped by the White Horse Hill, which attains a height of 840 feet; but the Berkshire Chalk escarpment, though rather higher and perhaps steeper than the Oxfordshire range, is not so well wooded nor so varied in outline.

The river Ock drains the larger portion of the district, the vale part of which is excavated in the Kimeridge Clay. It is a stream with many head-waters, several of which spring from the junction of the Chalk and the Gault, as at Compton Beauchamp, with its moated house, at the foot of the White Horse Hill near Uffington, at Kingstone Lisle, Letcombe, and Childrey, where there is one of the largest holly-trees in England. In fact, just as the sites of many villages in Oxfordshire at the base of the Chalk escarpment were chosen on account of the presence of springs of clear pure water, so here under similar circumstances we have the same effect produced. The bare Chalk slopes were rejected, while the sheltered spots with water-springs were selected by the early inhabitants, and villages grew up around them: the streams from these springs, which issue at the junction of the Chalk and Gault at about 460 feet elevation, flow at first bright and sparkling and produce abundance of watercress, but their water becomes muddy later on when they enter on the clay of the central part of the vale. One of the smaller tributaries of the Ock rises on the western side of the county from the greensand of Little Coxwell¹, winds round Longcott Hill, and entering the Kimeridge Clay runs by Stanford-in-the-Vale, near a Roman station, at the junction of the Clay with the Coralline Oolite, to Charney Bassett, where the adjoining meadows are of alluvial formation, and passes thence by the Early English church of Lyford, and by Garford to Marcham, where the meadows are of a very interesting character; from Marcham to Abingdon the Ock runs close to the Wilts and Berks Canal, in which *Potamogeton praelongus* is abundant, and *P. compressum*, Linn. (*zosteræ-folius*), *P. Friesii*, *P. crispum*, *P. interruptus*, *P. pectinatum*, *P. natans*,

¹ At Great Coxwell there is a large barn, 148 feet long, which was built by the Abbot of Beaulieu.

P. pusillum, *Chara fragilis*, var. *Hedwigii*, and *Tolypella glomerata* also occur. By its banks many forms of *Carex acuta* are found with *C. disticha*, *Cerefolium Anthriscus*, *Brachypodium pinnatum*, *Juncus obtusiflorus*, &c.

Another of its feeders rises near Faringdon, and passes by Shellingford to Stanford, while another from the same high ground (about 400 feet) near Faringdon, passes by Hatford to Stanford. A third, coming from the neighbourhood of Pusey, which is about 300 feet above the sea, drains the Celtic earthwork called Cherbury Camp, on which are to be found *Bromus erectus*, *Avena pubescens*, *A. pratensis*, *Carlina*, *Habenaria viridis*, *Cerastium arvense*, *Orchis ustulata*, *Asperula cynanchica*, and *Anemone Pulsatilla*, and then falls into the main stream of the Ock near Charney Basset. Other small streams come from the low watershed (under 300 feet) of the Coralline Oolite ridge at Kingston Bagpuze, Fyfield, and Tubney. One of these, the Frilford brook, passes through a tract of country which is particularly interesting from the extensive portion of bogland which it contains; here a large number of uliginous species occur, and with these, as so often happens, is found in close vicinity a rich ericetal vegetation, which has for its chief constituents *Trifolium arvense*, *T. striatum*, *T. scabrum*, *Cerastium arvense*, *Verbasum nigrum*, *Myosotis collina*, *M. versicolor*, *Echium vulgare*, *Onopordon Acanthium*, and many interesting forms of *Rubus*, among them *thyroides*.

Another, and in some respects a still more interesting feeder of the Ock, is a small brook with two or three branches, which comes from the watershed, at an elevation of about 300 feet near Besilsleigh, the birthplace of the botanist Berkenhout. The branch which passes by Cothill forms a marsh, which is one of the richest and most interesting in the Midland Counties. Among the plants which have been found there are *Potamogeton coloratus* in considerable quantity, *Utricularia major*, *U. minor*, *Chara hispida*, *C. contraria*, *C. fragilis*, *Samolus Valerandi*, *Epipactis palustris*, *Orchis incarnata*, and *latifolia*, *Eriophorum latifolium*, *Pinguicula vulgaris*, *Drosera rotundifolia*, *Echinodorus ranunculoides*, *Parnassia palustris*, *Oenanthe Lachenalii*, *Pedicularis palustris*, *Anagallis tenella*, *Valeriana dioica*, *Menyanthes trifoliata*, *Carex dioica*, *C. pulicaris*, *C. echinata*, *C. Hornschuchiana*, *C. fulva*, *C. flava*, *C. paniculata*, *C. remota*, *C. Boeninghausiana*, *C. rostrata*, *C. panicea*, *C. disticha*, *Schoenus nigricans*, *Molinia varia*, *Sieglingia decumbens*, *Phragmites communis* in magnificent specimens, *Juncus obtusiflorus*, while the drier portions of the marsh afford *Genista tinctoria*, *Genista anglica*, and *Lithospermum officinale*.

Lastly, another tiny brook carries off the water from another portion of country with a rich and varied flora, namely, that which includes the 'fir-topped Hurst' of Cumnor, Boar's Hill, and Foxcombe Hill with its 'signal elm,' and the woodland tract of Bagley.

The Ock is also reinforced by a stream which issues from the junction of the Chalk and Gault at about 400 feet, near the picturesque

village of Letcombe Basset, and passes by the ancient town of Wantage, near which its course is marked by a few marsh plants, and its banks here and there yield *Scolopendrium*. It receives in Hanney field (which is only 200 feet above the sea) the brook from Childrey which has passed through Denchworth, and it then joins the Ock near Marcham. The portion of the Ock district yet to be described is that part of it which is not drained by the Ock or its tributaries, and which is made up of several detached areas. The first of these to be noticed is the country which is drained by the Thames itself in its course from Oxford to Abingdon, and which includes the east side of Cumnor Hurst, the Boar's Hill range, the east side of Bagley Wood, and the Thames meadows from Ferry Hinksey to Abingdon. From the variety of its geological formations this is an extremely rich botanical district. Its altitude ranges from the river level, which is about 190 feet, to 535 feet on Pickett's Heath. The second is a bit of country on the southern side of the district, drained by a small spring which issues from the Chalk above Lord Wantage's house at Lockinge, and having formed the ornamental waters of his park passes by Steventon with its ancient causeway, Milton, and Sutton Courtney, into the Thames near Sutton pool, where the river is about 160 feet above the sea. This stream is known as the Genge or Ginge brook. A third area is drained by the Thames from Appleford to Rush Court. To these are to be added the piece of country drained by the Moreton brook, which comes from the high ground of Blewbury. At East Hagborne it is replenished by a spring called the Shovel spring, which has never been known to fail. This Hagborne stream was mentioned in a charter of King Alfred as 'Hacca broc'; near it *Oenanthe crocata* occurs in its most northern situation in the county. The Moreton brook also drains the villages of Brightwell and Satwell, before it passes through Wallingford into the Thames.

Lastly, there is the area through which flows the Cholsey stream, which absorbs the water from the north side of King Standing Hill (391 feet above the sea) and Lowbury Hill (585 feet), Aston Tirrel, and what was formerly the marsh of Cholsey (Ceol's Isle, once the residence of Professor Henslow), before it enters the Thames near Mongewell.

From the foregoing description of the boundaries and river systems of the district it will be gathered that it is of a very varied character. While a considerable portion of the Vale and the Thames meadows at Oxford do not exceed 200 feet in elevation, and decrease to 160 feet at Mongewell, yet the Chalk eminences reach 840 feet, and the southern boundary is for a considerable distance over 600 feet in altitude. The eastern elevation at Foxcombe Hill is over 535, and the northern watershed is between 300 and 400 feet, its highest point being 'Faringdon Clumps,' a distinguished landmark for many miles, which formerly

had some large trees in the centre, but these were cut down about the beginning of the present century; the outer circle of trees was planted by Pye, who was at that time Poet Laureate. The more unequal watershed on the western side is also about 400 feet. For some considerable distance round Besilsleigh the light sandy soil gives opportunity for the occurrence of ericetal plants, and similar soil is also found on Boar's Hill and in the neighbourhood of Faringdon, &c. A large portion of the Vale, as on the Gault and Kimeridge Clay, is a strong loam; this is principally under cultivation, and is very uninteresting to the botanist. The Coralline Oolite ridge is in several parts covered by extensive coppices, as at Tubney, Appleton, and Pusey; on this stratum the extremely rich marshes of Frilford and Cothill are found. The narrow alluvial meadows of the Thames and the wider ones of the Ock afford many local plants. The extensive Chalk downs have a rich xerophilous flora.

Space will only allow of a superficial description of plant localities in this district. It is probable that a walk from Oxford over Foxcombe Hill to Cothill and Marcham, and from thence to Abingdon, and through the Radley and Kennington meadows, back to Oxford, would yield as large a gathering of plants as any district of similar extent in Britain.

A walk along the 'Ridgeway,' from Uffington to Wantage, would pass over ground which would afford a considerable number of the species already enumerated in the list of plants. The views from this elevated roadway are particularly fine, stretching over the Vale of the White Horse to Faringdon Clump, Boar's Hill, the rounded Chalk outliers known as the Wittenham Clumps, and the distant hills of Wiltshire and Gloucestershire.

The high ground of Boar's Hill and Foxcombe Hill, with Cumnor Hurst and the coppices about it, and Bagley Wood, is also very productive ground to the botanist, although building operations threaten to destroy some of the country which was most prolific in rare plants. The northern side of the hills is marked by water-courses which have cut their way through the soft strata; one of these valleys is now occupied by the 'Rifle Butts,' another, which during the last ten years was a rich marsh, has been brought into what is called a state of cultivation, and a third was the source from whence Oxford was formerly supplied with water. Even yet, notwithstanding so much that has been done to destroy the wild character of the locality, many plants of interest are to be found. The village walls of the Hinkseys give *Sedum dasyphyllum*, *Cotyledon Umbilicus*, *Geranium lucidum*, *G. rotundifolium*, *Erophila præcox*, *Festuca Myurus*, *Myosotis collina*, *Arenaria leptoclades*, *Poa compressa*, &c. A rich growth of that beautiful sedge *Scirpus sylvaticus* may be found in one of the

valleys just mentioned, where it has been known to grow for the last two centuries, and this is one of the very few localities for it in the county. Associated with it are *Polygala vulgaris*, *Carex binervis*, *C. fulva*, *C. echinata*, *C. panicea*, *Stachys ambigua*, and *Juncus obtusiflorus*, while the more elevated portion of the ground, and the woodlands of Foxcombe and Bagley, afford *Clematis Vitalba*, *Ranunculus parviflorus*, *Aquilegia vulgaris*, *Thlaspi arvense*, *Viola palustris* (in the place where it was first identified as a distinct species by Dr. Plot), *Tunica prolifera*, *Teesdalia*, *Silene anglica*, *S. noctiflora*, *Cerastium semidecandrum*, *C. arvense*, *Spergula sativa*, *Sagina apetala*, *S. ciliata*, *Buda rubra*, *Reseda lutea*, *Montia fontana*, *Hypericum humifusum*, *H. pulchrum*, *Geranium pusillum*, *G. columbinum*, *Erodium cicutarium*, *Ilex Aquifolium*, *Euonymus europaeus*, *Rhamnus catharticus*, *Cytisus scoparius*, *Ononis spinosa*, *Medicago sativa*, *Melilotus officinalis*, *Trifolium arvense*, *T. medium*, *T. striatum*, *T. filiforme*, *Anthyllis*, *Astragalus glycyphyllos*, *Ornithopus perpusillus*, *Lotus uliginosus*, *Vicia tetrasperma*, *V. lathyroides*, *Lathyrus sylvestris*, *L. Nissolia*, *L. montanus*, *Prunus avium*, *Spiraea Filipendula*, *Rubus idaeus*, var. *anomalus*, *R. nessensis*, *R. fissus*, *R. Lindleianus*, *R. pulcherrimus*, *R. affinis*, *R. Colemanni*, *R. mercicus*, var. *bracteatus*, *R. rhamnifolius*, *R. pubescens*, *R. pyramidalis*, *R. villicaulis*, *R. macrophyllus*, *R. holerythros*, *R. sulcatus*, *R. oigoclados*, *R. Marshalli*, *R. Sprengelii*, *R. radula*, *R. echinatus*, *R. rudis*, *R. fuscus*, *R. foliosus*, *R. rosaceus*, *R. Kochleri*, &c., *Potentilla sylvestris*, *Alchemilla vulgaris* (very rare), *Rosa tomentosa*, *R. rubiginosa*, *R. micrantha*, *R. stylosa* (rare), *Pyrus torminalis*, *P. Aria*, *Saxifraga granulata*, *Parnassia palustris*, *Chrysosplenium oppositifolium*, *Ribes Grossularia*, *R. rubrum*, *R. nigrum*, *Sedum Telephium*, *Drosera rotundifolia*, *Peplis Portula*, *Epilobium angustifolium*, *E. parviflorum*, *E. tetragonum*, *E. obscurum*, *E. palustre*, *Hydrocotyle*, *Conium maculatum*, *Bupleurum rotundifolium*, *Silaus flavescens*, *Caucalis nodosa*, *Adoxa*, *Viburnum Lantana*, *V. Opulus*, *Lonicera Caprifolium*, *Galium uliginosum*, *G. hercynicum*, *G. verum-Mollugo*, *G. Cruciata*, *G. tricornis*, *Asperula odorata*, *Sherardia arvensis*, var. *Walravenii*, *Valeriana dioica*, *V. officinalis*, *Valerianella olitoria*, *V. dentata*, *Scabiosa Columbaria*, *Solidago Virgaurea*, *Erigeron acre*, *Filago minima*, *Gnaphalium sylvaticum*, *Pulicaria dysenterica*, *Anthemis arvensis*, *Chrysanthemum segetum*, *Tanacetum*, *Senecio sylvaticus*, *S. erucifolius*, *Arctium majus*, *Carduus nutans*, (*Cnicus*) *eriphorus*, *C. pratensis*, *C. acaulis*, *Carlina*, *Onopordon*, *Serratula*, *Centaurea Cyanus*, *Picris Hieracioides*, *P. Echioides*, *Crepis taraxacifolia*, *Hieracium sciaphilum*, *H. boreale*, *H. umbellatum*, *H. rigidum*, *Lactuca muralis*, *Tragopogon pratensis*, *Jasione*, *Campanula glomerata*, *C. Trachelium*, *C. Rapuncululus*, *C. rotundifolia*, *Cervicina hederacea*, *Legouzia hybrida*, *Vaccinium Myrtillus* (rare), *Calluna*, *Erica cinerea*, *Lysimachia vulgaris*, *L. nemorum*, *Anagallis femina*, *A. tenella*, *Blackstonia perfoliata*, *Gentiana Amarella*, *Menyanthes*, *Cynoglossum officinale*, *Lycopsis arvensis*, *Myosotis cespitosa*, *M. versicolor*, *M. collina*, *Lithospermum officinale*, *L. arvense*, *Echium vulgare*, *Solanum nigrum*, *Verbascum Thapsus*, *V. nigrum*, *Linaria spuria*, *L. Elatina*, *L. vulgaris*, *L. viscida*, *Digitalis*,

Veronica didyma, *V. Tournefortii*, *V. montana*, *V. officinalis*, *V. scutellata*, *Pedicularis sylvatica*, *P. palustris*, *Melampyrum pratense*, *Orobancha Trifolium-pratensis*, *Pinguicula vulgaris*, *Verbena officinalis*, *Mentha piperita*, *Origanum*, *Calamintha Clinopodium*, *C. arvensis*, *C. parviflora*, *Salvia Verbenaca*, *Nepeta Cataria*, *Stachys Betonica*, *S. arvensis*, *Melissa officinalis*, *Lamium amplexicaule*, *L. Galeobdolon*, *Teucrium Scorodonia*, *Plantago media*, *P. Coronopus*, *Scleranthus annuus*, *Chenopodium polyspermum*, *C. Bonus-Henricus*, *C. rubrum*, *Atriplex deltoidea*, *Polygonum Bistorta*, *P. dumetorum*, *Rumex acutus*, *Daphne Laureola*, *Euphorbia amygdaloides*, *Humulus Lupulus*, *Betula alba*, *Quercus Robur*, var. *sessiliflora*, *Salix Smithiana*, *S. aurita*, *Neottia Nidus-avis*, *Epipactis latifolia*, *E. palustris*, *Orchis pyramidalis*, *O. ustulata*? *O. morio*, *O. latifolia*, *Ophrys apifera*, *Habenaria conopsea*, *H. viridis*, *H. bifolia*, *H. chloroleuca*, *Iris foetidissima*, *Narcissus Pseudo-narcissus*, *N. major*, *Tamus*, *Convallaria majalis*, *Allium vineale*, *A. ursinum*, *Gagea*, *Juncus compressus*, *J. diffusus*, *Juncoides sylvaticum*, *Triglochin palustre*, *Eleocharis multicaulis*, *Scirpus pauciflorus*, *S. setaceus*, *Eriophorum angustifolium*, *E. latifolium*, *Carex dioica*, *C. pulicaris*, *C. disticha*, *C. divulsa*, *C. leporina*, *C. acuta*, *C. Goodenowii*, *C. pilulifera*, *C. verna*, *C. pallescens*, *C. fulva*, *C. flava*, *C. hirta*, *Milium effusum*, *Agrostis canina*, *Calamagrostis epigeios*, *Aira caryophyllea*, *A. præcox*, *Deschampsia flexuosa*, *Holcus mollis*, *Trisetum pratense*, *Avena pubescens*, *A. pratensis*, *Sieglingia*, *Melica uniflora*, *Poa nemoralis*, *Panicularia plicata*, *Festuca rigida*, *F. sciuroides*, *F. ovina*, *Bromus erectus*, *B. secalinus*, *Agropyron caninum*, *Nardus stricta*, *Blechnum Spicant*, *Athyrium Filix-foemina*, *Dryopteris dilatata*, *D. spinulosa*, *Ophioglossum vulgatum*, *Equisetum maximum*, *E. palustre*, *E. sylvaticum*, &c.

The summit of Boar's Hill affords one of those views which are to be seen only in England, a view which extends over a broad expanse of country that is at once well wooded and yet highly cultivated, and which has a special feature in the spires and towers of a classic city set like a gem in its centre; such a view when seen in an evening in late summer, before the corn is gathered in, astonishes the beholder with the revelation of beauty which it presents to the gaze. From these heights the whole of the Ock valley can be seen, the eye ranging southwards as far as to the abrupt escarpment of the White Horse Hill, and the Ridgeway marked by the British Camps of Uffington, Letcombe, Cuckhamsley, with Blewbury and Lowbury Castles, eastwards to Sinodun, guarding Dur-ceaster, the fort by the water, and south of east to the slopes of the Oxfordshire Chalk range, on which are the Chiltern Hundreds looking almost black where the turf is replaced by woodland, as at Nuffield and Shirburn. Westward, the prospect reaches to Faringdon Clumps standing up dark against the sky, and Cherbury Castle hidden in the trees, the traditional home of Canute, in the flat tract of the vale, through which the many branches of the river slowly wind unseen, till the eye is carried on to the spires

of Abingdon almost immediately below. The view to the north and east over Oxford, which Turner painted and Matthew Arnold has sung, is scarcely less extensive and is perhaps of still greater beauty; in the near distance is Iffley, with its Norman Church and picturesque lock, the rich green meadows of the Thames, and the bright-coloured College barges, the stately tower of Magdalen College, the spire of St. Mary's Church, the dome of the Radcliffe Library, and in the farther distance the Buckinghamshire hills of Muswell and Brill. To the south-east are the Chilterns already mentioned, and northwards the alluvial meadows of the Upper Thames. In the north-west the view over Eynsham and Wytham Beacon and the valley of the Thames is, at this evening hour, scarcely to be seen distinctly, but from its indefiniteness is not the less impressive.

The Thames meadows from Oxford to Abingdon, in addition to many of the plants mentioned in the previous list, yield *Thalictrum flavum*, *Myosurus minimus*, *Ranunculus fluitans*, *R. pellatus*, *R. Drouetii*, *R. trichophyllus*, *R. hederaceus*, *R. Lingua*, *R. Flammula*, *R. sceleratus*, *Castalia speciosa*, *Roripa sylvestris*, *R. amphibia*, *R. palustris*, *Cardamine amara*, *Erysimum cheiranthoides*, *Brassica sylvestris*, *B. nigra*, *Cochlearia Armoracia*, *Stellaria aquatica*, *S. palustris*, *Hypericum acutum*, *Geranium pratense*, *Potierium officinale*, *Hippuris*, *Myriophyllum verticillatum*, *M. spicatum*, *Callitriche obtusangula*, *C. hamulata*, *Sium latifolium*, *S. erectum*, *Oenanthe fistulosa*, *Oe. silaifolia*, *Oe. Phellandrium*, *Bidens tripartita*, *Petasites*, *Hottonia*, *Samolus*, *Limnanthemum*, *Symphytum officinale*, *Veronica Anagallis*, *Utricularia vulgaris*, *Mentha aquatica* and *verticillata* (*sativa*) in varying forms, *Polygonum minus*, *P. mite*, *P. maculatum*, *Rumex Hydrolapathum*, *Alnus*, *Salix purpurea*, *S. triandra*, *S. undulata*, *S. ferruginea*, *S. rugosa*, *Cerato-phyllum*, *Elodea*, *Hydrocharis*, *Stratiotes*, *Orchis incarnata*, *O. latifolia*, *Leucojum aestivum*, *Fritillaria*, *Typha latifolia*, *T. angustifolia*, *Sparganium erectum*, *S. neglectum*, *S. simplex*, *Acorus Calamus*, *Lemna trisulca*, *L. gibba*, *L. polyrhiza*, *Alisma Plantago*, *Sagittaria*, *Butomus*, *Potamogeton natans*, *P. praelongus*, *P. densum*, *P. (zosteræfolius) compressum*, *P. Friesii*, *P. pusillum*, *P. interruptus*, *Zannichellia palustris*, and *var. repens*, *Eleocharis acicularis*, *Scirpus Caricis*, *Carex acuta*, *C. vesicaria*, *C. Pseudo-cyperus*, *C. distans*, *Phragmites*, *Catabrosa*, *Panicularia plicata*, *Bromus commutatus*, *B. racemosus*, *Equisetum limosum*, *Chara fragilis*, *C. foetida*, *C. contraria*, *Tolypella prolifera*, and *T. intricata*.

The meadows at Marcham have already been stated to be of an interesting character. They are to some extent watered by springs which have percolated through the Coralline Oolite, and are thrown out by the impervious layer of Kimeridge Clay on which it rests; the waters are charged with a considerable percentage of saline matter. The course of the brook may be traced by the copious growth of *Apium graveolens*. Where the soil has been to some extent denuded of grass

by the cattle, quantities of the maritime plant *Buda media* (*Lepigonum*) may be noticed; a deeper ditch shows *Scirpus maritimus*, *Zannichellia pedunculata*, and *Tolypella glomerata*. The pastures are studded with *Oenanthe Lachenalii*, *Carex distans*, *C. disticha*, *Chara vulgaris*, var. *longibracteata*, *Agrostis alba*, var. *coarctata*, *Ranunculus trichophyllus*, *Orchis latifolia*, and *Hordeum nodosum*; there is also a large growth of *Juncus Gerardi* and *Scirpus Caricis*. Other plants of the vicinity are *Sagina nodosa*, *Callitriche obtusangula*, and *Carex axillaris*.

The country about Blewbury, in addition to many plants previously mentioned, has afforded *Anemone Pulsatilla*, *Fumaria densiflora*, *F. Vailantii*, *F. parviflora*, *Papaver hybridum*, *Oenanthe crocata*, *Valerianella rimosa*, *Crepis biennis*, *C. taraxacifolia*, *Lythrum Hyssopifolia*, *Senecio campestris*, *Orchis ustulata*, *Gyrostachis autumnalis*, *Galeopsis speciosa*, *Salvia Vertenaca*, *Linaria repens*, *Carum segetum*, *Juniperus communis*, *Taxus baccata*, *Allium vineale*, *Ophrys muscifera*, *O. apifera*, *Campanula glomerata*, *Bromus interruptus*, *Scolopendrium*, &c.

In addition to the foregoing, many other plants have been found in the Ock district; a few of the more local species may be mentioned—*Delphinium Ajacis*, *Berberis*, *Chelidonium*, *Fumaria confusa*, *F. capreolata*, *Sisymbrium Sophia*, *Camelina*, *Isatis*, *Diplotaxis muralis*, *Lepidium campestre*, *L. Draba*, *Saponaria Vaccaria*, *Arenaria tenuifolia*, *Geranium pyrenaicum*, *Ulex Gallii*, *Melilotus arvensis*, *M. alba*, *Lotus tenuis*, *Agrimonia odorata*, *Rubus Babingtonii*, *R. carpinifolius*, *Sedum album*, *Valerianella carinata*, *Filago spathulata*, *Artemisia Absinthium*, *Senecio squaridius*, *S. crassifolius*, *Arctium nemorosum*, *A. intermedium*, *Carduus pycnocephalus*, var., *Doronicum Pardalianches*, *Cuscuta Trifolii*, *Hyoscyamus niger*, *Verbascum Lychnitis*, *Orobanchae elatior*, *Mentha longifolia*, *M. piperita*, *Marrubium vulgare*, *Lamium hybridum*, *Chenopodium Vulvaria*, *C. urbicum*, *C. ficifolium*, *C. murale*, *C. hybridum*, *C. opulifolium*, *Rumex pulcher*, *Viscum album*, *Galanthus*, *Tulipa sylvestris*, *Colchicum*, *Setaria viridis*, *Bromus arvensis*, *Brachypodium pinnatum*, *Ceterach officinarum*, *Botrychium*.

The more noticeable absentees are *Narthecium*, which was extirpated about a century ago, *Scutellaria minor*, *Millegrana Radiola*, *Hypericum elodes*, *Scirpus caespitosus*, *Geum rivale*, and *Cerastium quaternellum*.

3. The Pang. This small but very interesting district, of which a considerable portion is more than 300 feet above the sea, and is wholly situate on the Cretaceous and Eocene measures, has the following boundaries. On the north it is separated from the Ock district, as already described, by a line drawn from Mongewell-on-Thames, where the river is 100 feet above the sea, to King Standing Hill, with an elevation of 391 feet, and thence to Lowbury, which is 585 feet high; from this point it runs along the 'Ridgeway' as far as the cross roads, one mile east of East Ilsley. At the cross roads the districts of the Ock and the Pang are met by that of the Kennet, the boundaries of

which have yet to be described. The Pang district is separated from the Kennet district by the turnpike road, which is practically on the watershed, from East Ilsley southwards by Ashridge, which is 545 feet, to Chieveley, which is 398 feet above the sea. Here the road, which turns in a south-easterly direction by the base of Oare Hill, 397 feet high, to Hermitage, is chosen as the boundary line; this crosses first the railway below Hermitage, and then the road up to Cold Ash Common, where an elevation of 513 feet is attained. From this point the line of delimitation is the southern road across the commons of Upper and Lower Bucklebury till Horn's Copse, which from an elevation of 382 feet overlooks the Kennet valley, is reached; from thence the watershed of the Kennet and the Pang is followed to Beenham Street, and there it is exchanged for the road which runs over Mare's Ridges to Englefield, where the summit of the watershed is about 275 feet above the sea, and then to North Street, Nunhide, Langley Hill, and Tilehurst, which last is 300 feet in elevation. From Tilehurst the boundary is the road through Pig's Green to Reading, which is 150 feet above the sea. The eastern boundary is the Thames, which, separating the Pang district from Oxfordshire, flows from Mongewell-on-Thames southwards to Reading, passing on its way Moulsoford, Streatley, Pangbourn, Maple Durham, and Tilehurst.

The country comprised in the Pang district may be divided into two drainage systems, one of which belongs to the Pang stream, and the other to the main stream of the Thames. The watershed between the Pang stream and the Thames is Lowbury Hill and the high ground, which at the ancient village of Aldworth with its gigantic yew trees is 503 feet above the sea, and stretches as far south as Yattendon, where the elevation is 373 feet above the sea; here the line of demarcation crosses Ashampstead Common to Pangbourn. A third area is the small strip which drains into the main stream of the Thames and stretches from Pangbourn, Purley, and the higher ground by Kentwood Farm and Prospect Hill, to Reading.

The northern part of the Pang district is bare and bleak; it is formed of Chalk downs covered by short grassy turf and almost destitute of trees, and affording extensive views over the Ock district; the air is delightfully bracing, even when an enervating atmosphere prevails in the valley below. It appears probable that the great battle of *Æscesdune* was fought on the downs of Ilsley and Compton; the latter Hundred was called in Domesday Book '*Nachededorne*,' that is the Hundred of the Naked-thorn; and Asser in his description of the battle speaks of a small thorn tree, '*Unica spinosa arbor, brevis admodum*,' round which the hostile armies met in the conflict which resulted in the utter rout of the Danes and in the death of King *Bægsæg* and many of his Jarls.

The downs are thickly covered with plants, and though the number of species composing the down-flora is not large, yet the individuals are in countless numbers and are of a very interesting character. The arable fields offer much less that is attractive. They often occupy dry valleys of the Chalk formation, and a walk across them on a hot day may easily lead to the over-estimation of the distance traversed, yet even here the botanist may be rewarded for his exertions. On one such day I found in these localities some curious specimens of *Bromus mollis*, which were determined by Professor Hackel to be a new variety of that species, but which I have since raised to specific rank.

The views from the Chalk downs of Lowbury, Streatley, and Basildon, although not so extensive as those to be obtained from the hills of the Ock district, yet have a charm which is to some extent absent from the latter, namely, the proximity of the Thames, which is here a full-fed river, slowly winding under the wooded heights of Gathampton; these offer a singularly-varied foliage, from that of the dark-coloured yew to the lightest-green leaves of the young beech and the almost yellow leaves of the oak, which here grows on such a shallow subsoil that it puts on autumn tints before summer has begun. These, again, are relieved by the beautiful foliage of the beam tree (*Pyrus Aria*), which a breeze of wind turns to silver. Beneath the wood comes a strip of living emerald pasture gilded in spring with Marsh Marigold, or frosted with Lady's Smock, and adorned in summer with a rich riparian growth of Sedge, Willow-weed, Purple Loosestrife, and Water Dock, or the exotic-looking leaves of the Butter Bur. The river itself in some of its back-waters or in its shallower channels will be seen thickly covered with the brilliant white flowers of the Water Buttercup, with its masses of dark-green foliage waving with the currents of the stream; its margins show the turquoise-coloured flowers of the Forget-me-not, the holt exhibiting the beautiful purplish-blue blossoms of the Meadow Geranium and the satin-shining catkins of the Sallow or the feathery flowers of the Meadow-sweet. Then, if we shift our point of view, we obtain a prospect over softly swelling downs which are studded with Juniper bushes and redolent of Thyme, and brilliant with the orange flowers of *Hippocrepis*, the Horse-shoe Vetch, and the blue of the Chalk Milkwort. The arable fields in this district seem to show fewer traces of the deteriorating influences of cultivation. Indeed, they often supply us with masses of colour which it is said that the floras of tropical countries cannot outrival. The Red Poppies are sometimes so abundant in a field of corn as actually to distress the eyes when gazing upon them at mid-day under a bright June sun. At other times the rich crimson of a field of Italian Clover, lighted up by the slanting rays of the setting sun, or a field of Charlock seen, as Tennyson says, 'in the sudden sun

betwixt two showers,' are sights which invariably are recalled to the mind when the district is discussed. In the late autumn of the drougthy year of 1893 the fields near Maple Durham looked as if covered with freshly fallen snow, which a strong wind had here and there removed in patches from the soil, but this effect is caused by no such inclement means, but simply by the profusion of the flowers of the Corn Chamomile. The red of the Poppies, the crimson of the Clover, the yellow of the Mustard, and the white of the Corn Chamomile, in these fields form continuous masses of colour, which are so pure in tone that it would be difficult to find any effect of the kind more beautiful in any country.

The dry Chalk district south of Lowbury is often capped with Tertiary deposits, and then the grassy downs show patches of Heather. To the bare downs succeed the beautiful Unwell Wood, which occupies the head of a dry Chalk valley, and covers the hill which is capped with Tertiary strata, and is nearly 600 feet high. Basildon Woods again are of great beauty, and the flora of the upper downs and woodlands is rich and varied.

Among the plants which have been found are *Clematis Vitalba*, *Anemone Pulsatilla*, *Helleborus foetidus*, *H. viridis*, *Papaver hybridum*, *Fumaria densiflora*, *F. parviflora*, *F. Vaillantii*, *Arabis hirsuta*, *Thlaspi arvense*, *Iberis amara*, *Reseda lutea*, *Helianthemum Chamaecistus*, *Viola sylvestris*, *Polygala vulgaris*, *P. calcarea*, *Cerastium semidecandrum*, *C. arvense*, *Budra rubra*, *Hypericum Androsaemum*, *H. montanum*, *H. humifusum*, *H. pulchrum*, *Malva moschata*, *Geranium pusillum*, *G. columbinum*, *Erodium cicutarium*, *Ilex*, *Euonymus*, *Rhamnus catharticus*, *Genista tinctoria*, *Anthyllis*, *Astragalus glycyphyllos*, *Hippocrepis*, *Lathyrus Aphaca*, *L. montanus* (*Orobis tuberosus*), *Prunus Cerasus*, *Spiraea Filipendula*, *Agrimonia odorata*, *Rosa tomentosa*, *R. micrantha*, *Pyrus torminalis*, *P. Aria*, *P. Aucuparia*, *Saxifraga granulata*, *Carum segetum*, *Bupleurum rotundifolium*, *Conium*, *Pimpinella major*, *Adoxa*, *Galium tricornis*, *Asperula odorata*, *A. cynanchica*, *Valerianella olitoria*, *V. dentata*, *Solidago*, *Erigeron acre*, *Filago minima*, *Inula Conyza*, *Tanacetum*, *Senecio sylvaticus*, *S. campestris*, *Centaurea nigra*, var. *decipiens*, *C. Cyanus*, *Picris Hieracioides*, *Crepis taraxacifolia*, *C. biennis*, *Hieracium sciaphilum*, *H. umbellatum*, *H. boreale*, *Lactuca virosa*, *L. muralis*, *Campanula glomerata*, *C. Trachelium*, *Legouzia* (*Specularia*) *hybrida*, *Calluna*, *Erica cinerea*, *Hypopitys*, *Lysimachia nemorum*, *Vinca minor*, *Blackstonia* (*Chlora*) *perfoliata*, *Gentiana Amarella*, *Erythraea Centaurium*, *Cynoglossum officinale*, *Myosotis collina*, *M. versicolor*, *Atropa*, *Hyoscyamus*, *Verbascum nigrum*, *Linaria repens*, *Veronica montana*, *Stachys arvensis*, *Lamium Galeobdolon*, *Teucrium Scorodonia*, *Plantago Coronopus*, *Scleranthus annuus*, *Daphne Laureola*, *Thesium*, *Betula alba*, *Carpinus*, *Fagus*, *Juniperus*, *Taxus*, *Neottia*, *Gyrostachis autumnalis*, *Cephalanthera pallens*, *Epipactis latifolia*, *E. media*, *Orchis pyramidalis*, *O. ustulata*, *O. nilivaris*, *O. Simia* (very rare, if not extinct), *O. morio*, *Ophrys apifera*,

O. muscifera, *Monorchis*, *Habenaria conopsea*, *H. viridis*, *H. bifolia*, *H. chloroleuca*, *Iris foetidissima*, *Galanthus*, *Ruscus*, *Polygonatum multiflorum*, *Allium vineale*, *A. ursinum*, *Juncoides* (*Luzula*) *Forsteri*, *Carex divulsa*, *C. pilulifera*, *Milium*, *Avena pubescens*, *A. pratensis*, *Melica uniflora*, *Poa nemoralis*, *Koeleria*, *Festuca rigida*, *Bromus interruptus*, *B. secalinus*, *B. ramosus cerus*, *Agropyron caninum*, *Elymus europaeus*, *Athyrium Filix-foemina*, *Chara fragilis*, and many others.

The Pang stream, which rises near Compton at about 320 feet above sea level, passes by the pleasantly situated village of Hampstead Norris and its extensive beech woods, where a very luxuriant growth of *Daphne Laureola* and a vast profusion of *Viola hirta* are conspicuous features. Some fine specimens of yew trees, which are native here, also occur, while *Daphne Mezereum* has been found in the neighbourhood. The woods here begin to show the beautiful *Polygonatum multiflorum*, which occurs in almost all the woods between this place and the Kennet in considerable quantity. *Lathyrus montanus* (*Orobis tuberosus*), a rare plant in the north of the county, is frequent in all the woods on the Tertiary strata. Among other interesting plants which occur here are *Prunus Cerasus* and *Helleborus viridis*.

From Hampstead Norris the Pang proceeds to Frilsham, about 260 feet in elevation, the hills above the stream rising to a height of 340 feet; on the western side is Marlstone Park, where *Tulipa sylvestris* grows, and *Carex vesicaria* is found in a small pond in the vicinity. From Frilsham the Pang proceeds to Bucklebury, where *Allium vineale* is rather common, and *Lilium Martagon* occurs in a semi-naturalized state, and *Saxifraga granulata* is found in an unusually luxuriant condition. The woods of Frilsham, Yattendon, and Hawkstone are beautiful and productive; the latter has a coppice known to the villagers as 'Hurt's Copse,' from the abundance of *Vaccinium Myrtillus*. Ashampstead Common, which is in the neighbourhood, is extensive and varied, possessing as it does rather the character of a hilly woodland tract than what is usually meant as a Berkshire common. It contains a very fine beech tree and some splendid hawthorn bushes, while many foreign conifers have been planted in it. These latter include *Pinus sylvestris*, *P. Picea*, *P. Abies*, *P. Douglasii*, *P. Larix*, *Wellingtonia*, and *Cryptomeria*: the latter especially looking out of place when growing in a dell covered with bluebells and stitchwort. It would be too tedious to give the names of all the more uncommon plants found in this very charming district, but among them are *Melampyrum pratense*, *Epilobium angustifolium*, *Narcissus major*, *Cynoglossum officinale*, *Rosa rubiginosa*, *R. tomentosa*, and a very large number of Brambles.

From Bucklebury, where, close to the church, there is a fine old cedar, the Pang flows to Stanford Dingley; there are some extensive

beds of watercress growing in springs, thrown out apparently by some bed of clay below the Bagshot Sands, of which Bucklebury Common would seem to be composed. The valley of the Pang here begins to show occasional tufts of *Carex paniculata*, and *Oenanthe crocata* also occurs. The Pang then proceeds to Bradfield, the site of the well-known and important school called Bradfield College, where a small stream called the Kimber rises and flows into the Pang. The meadows between Bradfield and Tidmarsh have some bushy thickets on the peaty soil, which yield *Geum rivale* and *G. intermedium* in the most northerly locality yet known for them in Berkshire. Here, too, is *Carex paniculata*, *C. disticha*, *Oenanthe crocata*, *Cardamine amara*, *Polygonatum multiflorum*, and by the stream some plants of *Aconitum Napellus* have become naturalized. *Ribes nigrum* is not unfrequent. In one of the meadows, on a gravelly bank, *Trifolium scabrum* is found, but not abundantly; it is a very rare plant of the county; and is associated with *Myosotis collina*, *M. versicolor*, and *Hieracium Pilosella*. From Tidmarsh, where on the border of one of the cornfields *Valerianella carinata* has been found, the Pang flows through low-lying meadows and plantations to Pangbourn, where it is about 150 feet above the sea. The plantations also contain a considerable quantity of *Polygonatum*, while the shady banks of the stream are covered with a profuse growth of *Cardamine amara*, and present a beautiful appearance when the plant is in full bloom. Near Pangbourn *Lamium purpureum* often has its leaves more deeply cut than is usual in the north of the county, and the hedge-banks yield *Carum segetum*, *Geranium rotundifolium*, *Cynoglossum officinale*, and *Dianthus Armeria*, the last being very local. The once interesting marsh of Pangbourn has been converted into rather dull pasture ground, but *Genista anglica* still occurs there. To the south of the marsh rises the bold wooded slopes of Sulham and Purley, which are very beautiful in themselves and contain many local plants. *Hypericum calycinum* is quite naturalized there, and *H. Androsaemum* and *H. montanum* also occur. *Pyrus Torminalis*, *P. Aria*, *Elymus europaeus*, *Atropa*, *Neottia*, &c., are also found, but the especial feature of the locality to the botanist is the border of turfy down, which is especially rich in Chalk plants. These include *Origanum*, *Iberis*, *Asperula cynanchica*, *Thesium*, *Polygala vulgaris* and *calcarea*, *Gentiana Amarella*, and till recently *G. campestris*, *Bromus erectus*, *Avena pubescens*, *A. pratensis*, *Cuscuta Epithymum*, &c. The neighbourhood also yields *Galium sylvestre* in its only Berkshire station yet known. *Arenaria tenuifolia*, *Cerastium semidecandrum*, *Viscum*, *Euphorbia Cyparissias*, *Convallaria*, *Mentha Pulegium*, *Antirrhinum Orontium*, *Vinca minor*, *V. major*, *Papaver somniferum*, *P. hybridum*, *Fumaria densiflora*, *Saponaria*, *Myosurus*, *Blackstonia*, *Erigeron acre*, *Linaria repens*, *Campanula Trachelium*, *C. glomerata*, *Ribes rubrum*, *R. nigrum*, *Lonicera Caprifolium*, *Malva moschata*, var. *Ramondiana*, &c., also occur.

The more elevated portion of the Pang district, which is drained by that river itself, is also well diversified. The bare high ground about East Ilsley is but a continuation of the Unwell and Lowbury Downs, already described, and has a similar flora to them, except that it is much less rich in sylvan species; but a little further south this deficiency is supplied by the extensive woods of Ashridge, which yield a most interesting species, namely, *Ornithogalum pyrenaicum*. It is associated with *Colchicum autumnale*, *Vicia sylvatica*, *Lathyrus sylvestris*, and a most beautiful growth of *Polygonatum multiflorum*.

The hilly common and woods of Oare, where the London Clay is worked for brick-making, has a vegetation rather unlike that of the woods previously mentioned. Here are to be found the graceful *Equisetum sylvaticum* and the elegant *Carex pallescens*, in addition to many of the plants previously mentioned. Its upland common has *Ulex minor* (*nanus*), *Erica Tetralix*, *Juncus squarrosus*, *Molinia*, *Salix repens*, *Sieglingia*, *Juncoides multiflorum*, *Nardus*, *Sagina ciliata*, *Deschampsia flexuosa*, *Carex pilulifera*, &c.

Another beautifully wooded tract of country is to be found on the east side of Hermitage Station, where the Fence Woods are situated on a hilly piece of ground, dry and sandy on the top, but with deep gullies and shady dingles, where peaty slopes and sphagnum bogs are to be found. Close by is Grimsbury Castle, occupying a commanding situation upwards of 460 feet above sea level, with its circular rampart now overgrown with trees and whortleberry. The camp had two entrances, the northern one of which was reached by a narrow road with steep banks on either side; it would appear from the deposit of peat in this spot that a considerable portion of the surrounding country was at one time under water. The higher portion of Fence Wood leads to the elevated plateau forming Cold Ash Common, from which a glorious prospect of the surrounding country can be obtained. One of the special charms afforded by this view is the character of the scenery, which is more broken up than is usually found in the county. To the south we have the bold escarpment of the Chalk with the wooded heights of High Clere, the bare slope of Walbury Camp, and the distant hills of Wiltshire. Below these is the area on which are the heaths of Greenham, Crookham, and Mortimer; to the east is the wooded hill of Yattendon; and to the south of this in the distance may be seen, between Caversham and Wargrave, the hills of Oxfordshire and Buckinghamshire. In conjunction with this common of Cold Ash may be mentioned the elevated commons of Bucklebury and Chapel Row, for these are also capped with Bagshot Sands, and have a somewhat similar flora. A walk along them is very enjoyable, and will yield a considerable number of plants, some of which attain to their most northerly position in Berkshire. The

following species have been met with on this area of upland commons—*Ranunculus hederaceus*, *Aquilegia*, *Arabis perfoliata*, *Viola palustris*, *V. canina*, *Cerastium quaternellum*, *Stellaria uliginosa*, *S. graminea*, *Sagina ciliata*, *Buda rubra*, *Montia*, *Hypericum humifusum*, *H. pulchrum*, *H. elodes*, *Millegrana*, *Genista anglica*, *Ulex minor* (*nanus*), *Cytisus*, *Trifolium filiforme*, *Lotus uliginosus*, *Rubus plicatus*, *R. villicaulis*, *R. incurvatus*, with many other species, *Potentilla sylvestris*, *Rosa rubiginosa*, *R. micrantha*, *Saxifraga granulata*, *Sedum Telephium*, *Drosera rotundifolia*, *D. longifolia*, *Peplis*, *Epilobium palustre*, *Apium inundatum*, *Erigeron acre*, *Filago minima*, *Tanacetum*, *Solidago*, *Hieracium sciaphilum*, *H. umbellatum*, *H. boreale*, *Cnicus pratensis*, *Lactuca muralis*, *Vaccinium Myrtillus*, *Calluna*, *Erica cinerea*, *E. Tetralix*, *Menyanthes*, *Lysimachia nemorum*, *Anagallis tenella*, *Cuscuta Epithymum*, *Veronica arcensis*, var. *eximia*, *V. scutellata*, *Pedicularis palustris*, *P. sylvatica*, *Scrophularia vernalis*, *Melampyrum pratense*, *Scutellaria minor*, *Teucrium Scorodonia*, *Plantago Coronopus*, *Scleranthus*, *Salix repens*, *Potamogeton polygonifolius*, *Juncus squarrosus*, *J. (supinus) bulbosus*, *Eleocharis multicaulis*, *Scirpus pauciflorus*, *Carex dioica*, *C. pulicaris*, *C. echinata*, *C. leporina*, *C. Goodenovii*, *C. pilulifera*, *C. panicea*, *C. laevigata*, *C. fulva*, *C. flava*, *C. vesicaria*, *Agrostis canina*, *Aira caryophyllea*, *A. praecox*, *Deschampsia flexuosa*, *Sieglingia*, *Molinia*, *Festuca sciuroides*, *Nardus*, *Dryopteris montana*, *D. spinulosa*, *D. dilatata*, *Lomaria*, *Osmunda*, *Equisetum sylvaticum*, &c.

One more area it will be necessary briefly to allude to, and that is the rich water meadows of the Thames, which from Mongewell to Reading are rather narrow, but which offer a considerable variety of plants. To those fond of placid river scenery, the country between the two places mentioned once gave a walk of intense charm, whose beauty it was difficult to overestimate and scarcely possible to match in the British Isles; now, alas, the hideous screech of the steam launch with its frequently vulgar concomitants, the glaring eruption of ugly advertisement boards, and the advent of the speculative builder, have robbed the scene of much of that quiet, refined, unobtrusive loveliness which was the secret of its charm. Notwithstanding the loss of much that we regret, and the presence of much that we deplore, the walk by the river from Mongewell with its magnificent elms—and few places show elms of a more noble growth than this portion of the Thames valley—to the picturesque village of Moulsoford, with its church embosomed in trees, is still a very pleasant one. Here the meadows are sometimes crimson with the profuse growth of *Pedicularis palustris*; the broad ditches, filled with almost stagnant water, have *Roripa amphibia*, *R. sylvestris*, *Stellaria palustris*, *Hottonia palustris*, *Sium latifolium*, *Callitriche obtusangula*, *Myriophyllum verticillatum*, *M. spicatum*, *Hydrocharis*, *Rumex Hydrolapatheum*, *Ceratophyllum*, *Panicularia plicata*, *Catabrosa*, *Carex riparia*, *C. acuta* (in most luxuriant growth), *C. acutiformis*, *Equisetum limosum*, &c.

Between Streatley, which is said with some authority to have been the Roman 'Thamesis,' and Pangbourn a country of great beauty is passed through. This is the headquarters of *Cardamine amara*. The river affords *Ranunculus fluitans*, *R. heterophyllus*, *R. pellatus*, *Potamogeton natans*, *P. praelongus*, *P. (zosteræfolius) compressum*, *P. pectinatum*, *P. interruptus*, *Chara fragilis*, var. *Hedwigii*, while its banks are bright with *Lythrum*, *Epilobium hirsutum*, *Thalictrum flavum*, *Brassica sylvestris*, and *Iris*, and its holts afford *Geranium pratense*, *Leucocjum aestivum*, and *Convallaria*. The higher ground has often a luxuriant growth of *Clematis* on its wood borders, while *Calamintha montana*, *Lactuca virosa*, *Blackstonia*, *Centaurea nigra*, var. *decipiens*, with many other local plants, are also to be found.

The exquisite beauty of Pangbourn, which has formed a subject for the pictures of generations of artists, is now seriously marred, but Maple Durham and the woods of Purley still retain much of their original charm. This narrow portion of the Thames valley, on a fine summer evening, presents a scene than which few fairer can be found. It exhibits on each side gracefully outlined and well-wooded chalk hills; in the foreground, near the noble river, are picturesquely grouped the church tower, the many-chimneyed antique mansion of the Blounts, and the romantic mill. Glimpses can be obtained of the foaming water rushing through the weir. It has often been to me a source of the most exquisite enjoyment to gaze upon this scene, while waiting for the evening train after a long day's walk, from Princes Risborough or Newbury, and be soothed and refreshed by its charms, to which must be added the lulling sound of the waters and the cawing of the birds from the distant rookery; while another sense is gratified when a breath of the fragrant woodbine, meadow-sweet, and clover, mingled in subtle combination, is brought by the light evening air, while the blue wood-smoke slowly rises from the quiet village and the mellowing summer mist forms and reveals itself, till the whole restful landscape is at length transfigured by the gorgeous radiance of the setting sun.

The Pang district, in its geology and flora, bears a close resemblance to the district of Oxfordshire called the Lower Thames. A few plants have been found on the Oxfordshire side which have hitherto evaded discovery on the Berkshire side of the Thames. These are *Phegopteris Dryopteris* and *P. calcarea (Robertiana)*, *Pyrola minor*, *Lycopodium Selago*, *L. clavatum*, *Rubus rudis*, *Cephalanthera ensifolia*, and *Antennaria dioica*.

The Pang district, however, possesses *Ornithogalum pyrenaicum*, *Drosera longifolia*, *Equisetum sylvaticum*, *Osmunda*, *Anemone Pulsatilla*, *Salix repens*, *Galium sylvestre*, *Euphorbia Cyparissias*, *Crepis biennis*, *Hypericum Elodes*, *Gum rivale*, *G. intermedium*, and *Valerianella carinata*, which are not on

record for that district of Oxfordshire. *Vaccinium Myrtillus*, *Erica cinerea* and *E. Tetralix*, *Polygonatum multiflorum*, *Orchis ustulata*, and *Cerastium quaternellum*, which are very local on the Oxfordshire side, are much more frequent in the Pang district.

4. The Kennet district is a large and unequally shaped tract of country, which is bounded by the districts of the Ock, the Pang, and the Loddon, and by the counties of Wiltshire and Hampshire. It is separated on the north from the Ock district by the 'Ridgeway' from near East Ilsley to the Wiltshire border. Near East Ilsley the summit of the watershed is about 600 feet in height, and the ridge rises to 650 feet at Cuckhamsley Knob; the downs above Wantage are 740 feet high. Letcombe Castle, a Celtic earthwork where *Gentiana germanica* is plentiful, is 690 feet above sea level, and the highest point of the watershed is reached on the White Horse Hill, where it attains the height of 840 feet. From this point the ridge sinks to 703 feet at Wayland Smith's Cave, the well-known cromlech, near the Wiltshire border, the traditional burial-place of Bægsæg, the Danish king, who was slain at the battle of Æscedune; of this spot, however, Sir Walter Scott has told a very different tale. It probably belongs to even more ancient and remote times than that of the Danish invasion.

The western border of the district is the county boundary of Berkshire and Wiltshire, which passes over Bishopstone Down, by the British fort of Membury, more than 700 feet above sea level, to the beautiful village of Chilton Foliat, where the Kennet enters Berkshire, and then to Hungerford, called by the Saxons 'Ettandune,' where it is said that Alfred in 878, disguised as a harper, visited the Danish camp and afterwards defeated them. Hungerford is 328 feet above the sea. The irregular county boundary then crosses the Kennet to Standen (402 feet), and then runs as far south as Shalbourne (437 feet), where a little stream comes from the base of the Chalk escarpment; here it turns east along the ridge of the southern Chalk downs by Ham and the hanging wood of Riever (738 feet), where the gallows-tree still stands in a situation commanding an extensive view down the Kennet valley and over the Lambourn woodlands. Near Buttermere corner Hampshire succeeds to Wiltshire, and is the boundary of the Kennet district on its southern side, the boundary line passing over Walbury Camp, the highest point of the county, which is 959 feet above the sea. From Walbury Camp the line passes Woodhay Oak Copse and reaches Holt, or, as it is written in the 25-inch Ordnance map, Hatt Common, which is about 360 feet above the sea; there a more natural boundary to the county is formed by the Emborne stream, which flows by Newbury Wash, Sandleford Priory, once the home of Mary Montagu, Greenham and Crookham Heaths, till it reaches Brimpton, where the height of the stream above sea level is

about 230 feet. Here the Emborne turns into Berkshire, and the boundary of Hampshire is now an arbitrary line which goes by Brimpton Common (356 feet), and from there follows what was probably a Roman highway, since at Silchester (334 feet) it passes by the Imp or Nymph Stone. It then passes the amphitheatre of Silchester, and crosses the Basingstoke railway one mile to the east of Silchester. At this point the boundary of the Kennet district is no longer that of the county, but is succeeded by the Loddon district, which is separated from the Kennet district by the road to Forward, Hale's Green, Beech Hill, and Spencer's Wood Common. The high ground of Shinfield and Shinfield Green is then the watershed of the two districts, which from this latter place to Reading, the county town, are separated by the turnpike road.

The Kennet is divided from the Pang district, as has already been said, by the road which leads from Reading to Tilehurst (300 feet) and Langley Hill, and which then goes across country to North Street. From the latter place to Hermitage the boundary is the road which passes through Englefield over Mare's Ridges and along the southern side of Bucklebury Commons, across Cold Ash Common to Hermitage, and then to Chieveley. From Chieveley the road to East Ilsley separates the Kennet from the Pang district.

Like the preceding districts, this is not of a homogeneous character. The drainage area is capable of being divided into three portions: first, that which is traversed by the main stream of the Kennet; secondly, that through which the Lambourn flows; and thirdly, the country drained by the Emborne stream. The boundary between the Kennet and the Lambourn subdivisions is the road from Baydon in Wiltshire to Wickham in Berkshire, which is practically on the top of the watershed, and is at its highest point nearly 700 feet above sea level; from Wickham, which is about 450 feet high, the road to Newbury is followed, where the river level is about 260 feet. The Emborne subdivision is bordered on the south by Hampshire, and the watershed on the northern side of the subdivision is the road from Inkpen to Tidcombe Row, Holt Green, Hampstead Marshall, across Newbury Wash, to Greenham and Crookham Heaths, where an elevation of close upon 400 feet is attained, and thence to Sherbert Bridge near Brimpton. The remaining central portion of the district is drained by the main stream of the Kennet.

The Lambourn subdivision consists of the Upper Chalk formation, and a great part of it is bare, arable soil, with numerous dry valleys which have been excavated in it. In the upper portion trees are few, and comparatively small bits of the original grassy downs remain. The river springs forth near the base of the 'Seven Barrow Field' near Upper Lambourn, and passes by the sequestered town of that

name, where there is a fine Elizabethan house, which is said to occupy the site of a Saxon palace belonging to King Alfred; the river then passes Eastbury, East Garston (370 feet), and the pretty villages of Great and Little Shefford. It is here a pleasant, clear, trout-stream, with a gravelly bottom, and the narrow meadows are on peat, since peat was cut for fuel here about a century since. The tussocks of *Carex paniculata* are conspicuous in the marshes, and *Oenanthe crocata* grows here and there in the irrigated fields. The small disused church of Little Shefford contains some monuments to members of the Fettiplace family. The river then passes the village of Weston and reaches the pleasant park and village of Welford (the Willow ford), where there is a row of fine old Crab trees, a Lime avenue, and a considerable growth of Mistletoe; it then flows by Boxford and past the ruined ivy-mantled castle of Donnington to the Kennet.

The more northern part of this Lambourn division consists of Chalk downs, which are now to a considerable extent bare arable fields, singularly poor, even in weeds of cultivation, and the grassy downs themselves are not quite as rich in species as those nearer the river. But the delightfully fresh air, and the extensive prospect which is to be seen from the thymy Ridgeway, to some extent compensates for the comparative poverty of its flora. From the White Horse range it is said that nine counties can be seen; at any rate such distant objects as the Cotswolds, the Sarsden Larches, Tadmorton Camp, the high ground of Steeple Aston, Long Crendon, and the Aylesbury Chilterns can be seen. It is stated that the Breconshire Hills have been seen from it.

The upper part of the Lambourn subdivision produces, among others, the following plants:—*Clematis*, *Ranunculus peltatus*, var. *penicillatus*, *Thlaspi arvense*, *Reseda lutea*, *Polygala calcarea*, *Cerastium arvense*, *Rhamnus catharticus*, *Euonymus*, *Astragalus danicus*, *Anthyllis*, *Hippocrepis*, *Prunus Cerasus*, *Spiraea Filipendula*, *Rubus idaeus*, *Saxifraga granulata*, *Oenanthe crocata*, *Caucalis arvensis*, *Asperula cynanchica*, *Valeriana dioica*, *Valerianella olitoria*, *V. dentata*, *Scabiosa Columbaria*, *Erigeron acre*, *Inula Conyza*, *Senecio sylvaticus*, *S. campestris*, *Carlina vulgaris*, *Serratula*, *Centaurea nigra*, vars. *radiata* and *decipiens*, *Picris Hieracioides*, *Campanula glomerata*, *Legouzia* (*Specularia*), *Calluna*, *Erica cinerea*, *Gentiana Amarella*, and var. *praecox*, *G. germanica*, *Atropa*, *Verbascum nigrum*, *Verbena*, *Origanum*, *Calamintha arvensis*, *Nepeta Cataria*, *Viscum*, *Thesium*, *Habenaria viridis*, *H. conopsea*, *H. chloroleuca*, *Ophrys apifera*, *Polygonatum multiflorum*, *Allium vineale*, *Zannichellia*, *Carex paniculata*, *C. divulsa*, *Milium*, *Trisetum*, *Avena pubescens*, *A. pratensis*, *Bromus erectus*, &c.

The southern portion of the country, drained by the Lambourn, is very different from the upper, as the Chalk is in many places covered with tertiary deposits, such as the Bagshot Sands, or by patches of

London Clay, and these form extensive heaths, whose borders often shelve down into boggy tracts. One of the richest of these heaths is Snelsmore Common, occupying a somewhat elevated plateau, about 470 feet above sea level, in which a few shallow gullies have been cut and form sphagnum-bearing bogs; but the greater portion is dry gravelly heathland, whence beautiful views are obtained of the well-wooded southern side of the Kennet valley, and the boldly outlined hills of Walbury and High Clere. These commons, heaths, and bogs afford a very different flora from the one recently described. They provide a home for *Ranunculus hederaceus*, *Cardamine flexuosa*, *Viola palustris*, *Cerastium quaternellum*, *C. semidecandrum*, *Stellaria uliginosa*, *Sagina ciliata*, *S. sulcata*, *S. nodosa*, *Buda rubra*, *Montia*, *Hypericum humifusum*, *H. pulchrum*, *H. elodes*, *Malva moschata*, *Millegrana*, *Geranium pusillum*, *Erodium cicutarium*, *Genista anglica*, *Ulex minor*, *Cytisus*, *Ornithopus*, *Lotus uliginosus*, *Trifolium filiforme*, *Rhamnus Frangula*, *Rubus plicatus*, *R. nitidus*, *R. villicaulis*, *R. Lindletianus*, *R. macrophyllus*, *R. Radula*, *R. echinatus*, *R. diversifolius*, *R. flexuosus*, &c., *Rosa tomentosa*, *R. rubiginosa*, *R. micrantha*, *R. stylosa*, &c., *Saxifraga granulata*, *Chrysosplenium oppositifolium*, *Drosera rotundifolia*, *D. longifolia*, *Peplis*, *Epilobium obscurum*, *E. palustre*, *Hydrocotyle*, *Apium inundatum*, *Galium hercynicum*, *G. uliginosum*, *Valeriana dioica*, *Filago minima*, *Inula Conyza*, *Gnaphalium sylvaticum*, *Cnicus pratensis*, *Solidago*, *Hieracium boreale*, *H. sciaphilum*, *H. umbellatum*, *Vaccinium Myrtillus*, *Calluna*, *Erica cinerea*, *E. Tetralix*, *Lysimachia nemorum*, *Centunculus*, *Anagallis tenella*, *Erythraea pulchella*, *Myosotis cespitosa*, *M. versicolor*, *M. collina*, *Cuscuta Epithymum*, *Mimulus Langsdorffii*, *Veronica scutellata*, *Pedicularis palustris*, *P. sylvatica*, *Scutellaria minor*, *Orobanche Rapum*, *Trifolium pratense*, *Pinguicula vulgaris*, *Calamintha arvensis*, *Nepeta Cataria*, *Teucrium Scorodonia*, *Plantago Coronopus*, *Salix repens*, *Orchis latifolia*, *Polygonatum multiflorum*, *Nartheicum*, *Juncus bulbosus (supinus)*, *J. squarrosus*, *Potamogeton polygonifolius*, *Eleocharis multicaulis*, *Scirpus pauciflorus*, *S. fluitans*, *S. setaceus*, *Schoenus*, *Eriophorum angustifolium*, *Rhynchospora alba*, *Carex dioica*, *C. pulicaris*, *C. paniculata*, *C. echinata*, *C. leporina*, *C. pilulifera*, *C. pallescens*, *C. linervis*, *C. panicea*, *C. rostrata*, *C. fulva*, *C. flava*, *Aira caryophyllea*, *A. prae-cox*, *Deschampsia flexuosa*, *Sieglingia*, *Molinia*, *Melica uniflora*, *Festuca sciuroides*, *Nardus*, *Athyrium Filix-foemina*, *Dryopteris dilatata*, *D. spinulosa*, *Blechnum*, *Equisetum sylvaticum*, &c.

The Emborne or Enborne, which runs through pretty scenery south of the Kennet, drains some very rich and interesting country, including Inkpen Common, and the southern and richer side of Greenham and Crookham Heaths, as well as the woods of Sandford Priory. In this district also are the heaths of Brimpton, Aldermaston, and Mortimer, and the beautiful woods of Wasing.

Inkpen Common, which is 517 feet above sea level, produces *Viola lactea* in considerable plenty in addition to a rich ericetal

vegetation. The extensive heaths of Greenham and Crookham are about 400 feet above the sea, and the view from them must be seen to be fully appreciated; it takes in the noble downs of Beacon Hill, Sidmonton, and High Clere on the south, while on the northern side of the Kennet may be seen the pleasant line of country extending to Snelsmore, Bucklebury, and Cold Ash Commons, and the high grounds of Yattendon. In 1893, as the writer came, after a long walk over the southern downs, through Sandleford on to Greenham Common, the latter was to be seen covered with the white tents of our soldiers; and then in presence of the full array of war, but without its distressing concomitants, few more striking and beautiful scenes could be presented than that which met the eye, as it ranged from the tented field to the golden furze, and the rich deep green foliage of the alder gullies, or to the bluish shades which marked the distant view; while to the charm, arising from the beauty of outline and the colour of the general landscape and the rich and varied vegetation of the heaths in the nearer distance, was added the spell of historic association which the vicinity of Falkland's last battle-field and the defence of Donnington necessarily exerted on the mind.

The wooded districts of Wasing, Brimpton, Aldermaston, and Mortimer also offer scenes of great and varied beauty, and the flora is of a most interesting character. A walk through these districts is a never-failing pleasure. At one time we may explore the hidden recesses of a deep alder gully, where in densest shade we shall find *Viola palustris* and *Chrysosplenium*, or on its borders catch the scent of the fragrant Bog myrtle, or see the Cotton grass wave its plumes among the dark orange spikes of the Lancashire Asphodel, and in damper places admire the glossy leaves of the Bog bean; at another time we may roam over some sunny heath full of sentient life, and in an air that is bracing without being chill get renewed strength to explore the thick masses of heather and gorse, or examine the short turf where patches of *Millegrana*, or *Centunculus*, or the fragrant Chamomile may occasionally be found, or make our way through the woods, where the Whortleberry covers the ground, to some sequestered pool of dark peat-water, in which the beautiful *Nitella translucens* may be observed, and see the graceful spikes of *Carex Pseudo-cyperus* reflected in its dark waters. Or yet again, we may visit a village like Aldermaston, with its picturesque houses and ivy-clad inn, passing through the rich verdure of the meadows, or strolling up some sandy lane, where the hedges are scented with Honeysuckle and Eglantine, and adorned with the Prickly Shield fern, or wandering by the banks of the Emborne stream itself, where masses of colour are afforded by the naturalized *Impatiens biflora* and *Mimulus*, and where there is a profuse growth of blue Forget-me-nots, pink Ragged-robin, and yellow Winter Cress.

The Kennet valley, in addition to the plants already mentioned, affords, among others, the following interesting species—*Anemone Pulsatilla*, *Thalictrum flavum*, *Ranunculus sardous*, *R. sceleratus*, *R. hederaceus*, *R. Flammula*, *Aquilegia*, *Capnoides lutea*, *Papaver hybridum*, *P. somniferum*, *Barbarea praecox*, *Cardamine amara*, *Lepidium Draba*, *L. campestre*, *Roripa amphibia*, *R. sylvestris*, *Erophila praecox*, *Viola lactea*, *Silene anglica*, *S. noctiflora*, *Saponaria Vaccaria*, *Stellaria umbrosa*, *S. aquatica*, *Sagina apetala*, *S. subulata*, *Hypericum quadrangulum*, *H. Androsaemum*, *H. hircinum*, *Geranium pyrenaicum*, *G. pratense*, *G. rotundifolium*, *G. lucidum*, *Erodium moschatum*, *Genista tinctoria*, *Trigonella*, *Mellilotus alba*, *M. officinalis*, *M. arvensis*, *Trifolium medium*, *T. arvense*, *Lathyrus montanus*, *L. Nissolia*, *L. latifolius*, *L. sylvestris*, *Alchemilla vulgaris*, *Rubus holerythros*, *R. dumnoniensis*, *R. rhamnifolius*, *R. pulcherrimus*, *R. silvaticus*, *R. Babingtonii*, *R. Sprengelii*, *R. pyramidalis*, *R. foliosus*, *R. Kochleri*, *R. rosaceus*, *R. Balfourianus*, &c., *Agrimonia odorata*, *Pyrus communis*, *Geum rivale*, *G. intermedium*, *Ribes nigrum*, *R. rubrum*, *Callitriche obtusangula*, *C. hamulata*, *C. polymorpha*, *Myriophyllum verticillatum*, *M. spicatum*, *Epilobium tetragonum*, *E. lanceolatum*, *E. roseum*, *Conium*, *Cerefolium Anthriscus*, *Oenanthe fistulosa*, *Oe. fluviatilis*, *Oe. Phellandria*, *Caucalis nodosa*, *Smyrnum*, *Foeniculum*, *Adoxa*, *Galium tricornis*, *Centranthus ruber*, *Filago apiculata*, *Pulicaria vulgaris*, *Bidens cernua*, *B. tripartita*, *Petasites officinalis*, *P. fragrans*, *Anthemis nobilis*, *Tanacetum*, *Chrysanthemum Parthenium*, *Centaurea Cyanus*, *Onopordon*, *Hieracium rigidum*, var., *Lactuca muralis*, *L. virosa*, *Crepis taraxacifolia*, *Jasione*, *Vaccinium Myrtillus*, *Lysimachia vulgaris*, *Hottonia*, *Gentiana campestris*, *Cynoglossum officinale*, *Echium*, *Asperugo*, *Myosotis sylvatica*, *Cuscuta Trifolii*, *Hyoscyamus*, *Datura*, *Linaria Elatina*, *L. spuria*, *Antirrhinum Orontium*, *Veronica montana*, *Melampyrum pratense*, *Lathraea*, *Utricularia major*, *U. vulgaris*, *Orobanche major*, *Mentha Pulegium*, *Salvia Verbenaca*, *Stachys arvensis*, *Lamium Galeobdolon*, *Littorella*, *Chenopodium polyspermum*, *C. rubrum*, *Atriplex deltoidea*, *Polygonum Bistorta*, *P. mile*, *Myrica Gale*, *Rumex acutus*, *Thesium*, *Salix triandra*, *S. purpurea*, *S. stipularis*, *Euphorbia Lathyris*, *Ceratophyllum*, *Neottia*, *Epipactis latifolia*, *Orchis latifolia*, *O. ustulata*, *O. incarnata*, *Ophrys muscifera*, *Hermidium*, *Gyrostachis autumnalis*, *Contallaria*, *Muscari*, *Galanthus*, *Paris*, *Allium ursinum*, *Narthecium*, *Iris foetidissima*, *Crocus vernus*, *Narcissus Pseudonarcissus*, *N. biflorus*, *Juncoides sylvaticum*, *Typha latifolia*, *T. angustifolia*, *Hydrocharis*, *Ornithogalum pyrenaicum*, *Triglochin palustre*, *Potamogeton crispum*, *P. densum*, *P. Friesii*, *Eleocharis acicularis*, *Scirpus caespitosus*, *S. caricis*, *Carex pallescens*, *C. laevigata*, *C. strigosa*, *C. vesicaria*, *Agrostis setacea*, *A. canina*, *Koeleria*, *Catebrosa*, *Poa Chaizii*, *Panicularis plicata*, *Festuca rigida*, *F. Myurus*, *F. ovina*, *F. rubra*, var. *fallax*, *Asplenium Adiantum-nigrum*, *Dryopteris montana*, *Phegopteris polypodioides*, *Polystichum angulare*, *P. aculeatum*, *Osmunda*, *Ophioglossum*, *Lycopodium Selago*, *L. inundatum*, *Equisetum maximum*, *Orobanche Rapum-genistae*, and *Chara fragilis*.

The sub-division drained by the main stream of the Kennet is also of a very interesting character. Near Chilton Foliat there is a rich marsh, but it is chiefly on the Wiltshire side of the stream. The district also contains the slopes of Walbury Camp, the highest point of the county, and the hanging woods of Riever, which, as the writer first saw them, were a sight of great beauty, for the undergrowth had been cleared away, and the ground was covered with a profusion of Red Campion, which was visible from a distance of two or three miles. On approaching nearer a misty blue colour became apparent in another direction, and this proved to be due to *Myosotis sylvatica*, a most interesting addition to the county flora. The abundance of *Eupatorium cannabinum* and *Valeriana officinalis* is a curious feature of this steep Chalk slope. On the top of the ridge, upwards of 900 feet above sea level, is a small pond called Wigmoreash Pond, in which *Myriophyllum alterniflorum* and a pretty form of *Ranunculus pellatus* were found, but the downs were rather bare of interesting species. *Habenaria viridis*, *Asperula cynanchica*, *Thesium*, and *Polygala calcarea*, &c., were observed. Unfortunately the surface of the upper part of Walbury Camp is no longer wholly turf, and the barren soil is almost entirely composed of flints, having been brought into that sordid condition of so-called cultivation, which is so annoying to the lover of nature and disappointing even to the utilitarian. A little below the level of the camp, in an easterly direction, some deposits of tertiaries or brick earth are probably present, since *Rubus idaeus*, *Mercurialis*, and *Solidago* occur at what in Berkshire may be called alpine altitudes.

The irrigated meadows of the Kennet are well known, and from their occasional peaty character give a home to plants which are absent from the meadows of the Upper Thames. The numerous and extensive beds of reeds and osier-holts are another pleasing feature of the valley; in fact, a walk down the Kennet meadows from Hungerford to Reading reveals a succession of charming pictures. The main stream of the Kennet drains not only the valley, but also considerable portions of the uplands on the north side of the stream, as, for instance, King's Heath Common, parts of Wickham Heath, and Bucklebury Common, the Parks of Elcot, Midgham, and Englefield, and the ground on which stands the half-ruined moated house of Southcote, and that occupied by the pleasant park of Calcot House, 'full of dappled fallow deer.' On the south side of the stream there are parts of Greenham Common, Hampstead Marshall Park, with its series of lakes, so named from its formerly appertaining to the Marshal of England, the site of the Elizabethan house of Ufton, Burghfield Common, and what was once the rich heath of Sulhampstead.

5. The Loddon and Blackwater, or the district of the Lower Thames, is an irregularly shaped district which has the following boundaries,—

on the west it is separated from the Kennet district by the road which, after approaching the Basingstoke railway where the latter enters Berkshire, passes by the hamlets of Forward and Hales Green, and over Spencer's Wood Common to Shinfield, and runs from there to Reading. On the northern side, between Reading and Henley, it is separated from Oxfordshire by the Thames, which also serves to divide it on the east from Buckinghamshire, between Henley and Old Windsor. Its southern boundary is not so natural, but from Old Windsor to Blackwater the county-boundary of Surrey is its line of limitation. From Blackwater to Thatcham's Ford near Swallowfield the river of that name separates the district from Hampshire. Its southern boundary, from Thatcham's Ford to the Forward Road, is the artificial line which there forms the boundary of the county of Hants.

The district is the least homogeneous of all the botanical divisions of the county. It has four well-marked kinds of soil. First, that of the heathy, sandy tract of country such as is found round Wokingham and Sandhurst; secondly, that of the flat clay-land about Ruscombe; thirdly, that of the hilly chalk-country of Wargrave and Cookham; and lastly, that of the elevated knolls of London Clay to be seen at Ashley, Crazey, and Bowsey Hills. But these by no means represent all its varieties of soil.

Considered as a natural drainage division it is by no means satisfactory, since its watersheds are to a great extent low and obscure. It has many small streams which fall into the Thames, and these drain such small areas that it would be impossible to treat them as separate divisions; hence unusual difficulty has been felt in arriving at a definite plan. It is hoped that the district enclosed within the boundaries just described will be found to represent as natural and satisfactory a grouping of these small and detached areas as is possible. A portion only of the district, but the larger portion as the name implies, is drained by the Loddon and its tributaries, and may be divided into four parts, the first of which is drained by the Blackwater, the second by the Loddon itself, the third by the Emme brook which falls into the Loddon near Coleman's Moor, and the fourth by the Broadwater which joins the Loddon near Twyford. The remainder of the district is drained by the Thames and by several small streams which flow into the Thames, and comprises several detached areas. One of these is the bit of country between Reading and Sonning; another of some size is, perhaps, best described by saying that it lies to the north of the high road from Maidenhead to Twyford; a third, which stretches inland between Maidenhead and Windsor as far as Winkfield, is drained by the Whitewater and by some other streams which fall into the Thames; a fourth is almost

entirely composed of Windsor Park ; and the last, a detached area, which includes part of Virginia Water, is drained by a brook that enters Surrey and falls into the Thames near Chertsey.

The elevation of the Loddon district is much lower than that of any district hitherto described ; a considerable part of it is less than 150 feet, while its highest point, Bowsey Hill, which is composed of London Clay capped with pebble drift, is less than 450 feet above the sea. The highest point attained by the Bagshot Sands is on Easthampstead Plain, which is about 430 feet high.

The Blackwater, where it enters Berkshire, is less than 200 feet above the sea, while the height of the Loddon at the Hampshire border is not more than 150 feet. The Thames at Reading is about 120 feet, and at its exit from the county near Old Windsor not more than 60 feet above sea level.

The part of Berkshire drained by the Loddon stream before it receives the Blackwater is so small that it has been considered better to treat of the drainage of the two streams under one head (as is done in Townsend's *Flora of Hampshire*). The course of the two streams has been already described ; they drain a most interesting tract of country.

Near Blackwater the scenery is of a different character from that found in the northern districts of the county. Extensive tracts of heathy ground, planted with pines, which seed freely, stretch in various directions for a considerable distance, and include in fact the hilly country leading up to Easthampstead Plain, Wickham Bushes, Broadmoor, and Crowthorn, the country south of the long Roman road known as the Devil's Highway, and that which lies about Long Moor, Wellington College, and the beautiful Finchampstead Ridges.

From the summit of one of the rounded hills in this district, the view is over a stretch of dark pine plantations covering the lower eminences, or else over an expanse of heather and gorse which in autumn is bright in 'purple and gold' and shows here and there green patches where the sphagnum growth suggests boggy ground ; but to obtain a prospect of a more varied and extensive character the view from Finchampstead Ridges is strongly to be recommended. A favourable impression is given if the approach be made from Wellington College up the long and formal avenue of Wellingtonias, which have been appropriately planted there, for then the view breaks with startling suddenness upon the observer. The approach from the western side by the village of Finchampstead is not without its charm, as on this route masses of Rhododendrons and magnificent clumps of brambles are passed before the summit is reached. On and immediately around the summit is a profuse growth of heather, bramble, birch, and bracken clothing the slopes down towards the river, beyond which a large expanse of the flat country of North Hampshire

is spread before the observer's eye. Very near is Eversley, the beloved home of Charles Kingsley; while beyond, in the southern distance, is Fleet Pond and the Surrey hills, with a most interesting vegetation. Farther on lies the camp of Aldershot, and to the south-east is seen the long line of the Hog's-back: in the nearer distance is the country about Wellington College and Sandhurst, and the rounded knoll of Ambarrow, while the wooded hills of High Clere appear on the western horizon. This portion of the district contains part of the common of Risely, which is to some extent brought into cultivation, and also Finchampstead Leas, which are practically an extension of the Hampshire common of Bramshill. The Leas are noticeable from the profusion of *Rhamnus Frangula* which they contain. *Dryopteris dilatata*, *D. spinulosa*, *Blechnum*, and *Athyrium Filix-foemina* also occur there. A coppice near the Leas is one of the two known localities in Berkshire for *Pyrola minor*, while *Genista tinctoria*, *Stellaria umbrosa*, *Geranium columbinum*, *Carex elongata*, *Scirpus sylvaticus*, and *Fumaria muralis* also occur in the vicinity. In the heath country a pool is occasionally met with in and around which the vegetation, both in this and in the country drained by the Emme stream, usually consists of *Ranunculus Flammula*, *R. peltatus*, *Stellaria uliginosa*, *Montia*, *Hypericum elodes*, *Milegrana Radiola*, *Drosera rotundifolia*, *D. longifolia* (*intermedia*), *Peptis Portula*, *Epilobium palustre*, *Hydrocotyle*, *Aptium inundatum*, *Galium palustre*, *Erica Tetralix*, *Myosotis cespitosa*, *Centunculus*, *Veronica scutellata*, *Pedicularis palustris*, *P. sylvatica*, *Anagallis tenella*, *Scutellaria minor*, *Menkia verticillata*, *M. aquatica*, *Littorella*, *Potamogeton polygonifolius*, *Narthecium*, *Juncus bulbosus* (*supinus*), *Scirpus fluitans*, *Eriophorum angustifolium*, *Carex echinata*, *C. canescens*, *C. flava*, *Pitularia*, *Lycopodium inundatum*, &c.

The extensive tract of ground, to a great extent uncultivated, lying between Caesar's Camp, Bracknell, Bagshot Heath, the Surrey boundary, Blackwater, Finchampstead, Wellington College, and Long Moor, with the large ponds at Sandhurst, offers a rich variety of plants. On the fir-clad tops of the arid higher eminences *Calluna*, *Erica cinerea*, *Agrostis setacea*, *Deschampsia flexuosa*, and *Pteris* are the chief ingredients in the vegetation. In the long marshy bottoms *Erica Tetralix*, *Molinia varia*, *Rhynchospora alba*, *Carex binervis*, *C. pulicaris*, *C. echinata*, *C. flava*, *C. rostrata*, *Scirpus caespitosus*, *Eleocharis multicaulis*, *Eriophorum angustifolium*, *Agrostis canina*, *Onicis pratensis*, *Drosera rotundifolia*, *D. longifolia*, *Narthecium*, *Hypericum elodes*, *Potamogeton polygonifolius*, *Gentiana Pneumonanthe*, *Genista anglica*, *Juncus bulbosus*, *Nardus*, *Salix repens*, *Orchis latifolia*, and *Juncoides multiflorus* are the chief plants. When a little shade is afforded by a thicket of Birch or Alder we shall find, especially by the deep trenches, *Hydrocotyle*, *Viola palustris*, *Lotus uliginosus*, *Blechnum*, *Dryopteris dilatata*, *D. spinulosa*, *Rubus carpini-folius*, *R. suberectus*, *Rhamnus Frangula*, *Myrica*, and *Potamogeton polygoni-*

folius; and in drier places *Rubus plicatus*, *R. holerythros*, *R. lentiginosus*, *Salix repens*, *Ulex minor*, and *Carex pilulifera*. The grassy rides through the heathy woods yield *Cerastium quaternellum*, *Milegrana Radiola*, *Centunculus*, *Polygonum Hydropiper*, *Festuca sciuroides*, *Sagina subulata*, *S. ciliata*, *Agrostis setacea*, *A. canina*, *Scutellaria minor*, and *Cerastium viscosum*, var. *apelatum*.

The pine woods and larch plantations are for the most part poor in herbaceous undergrowth, which usually consists of extensive tracts of *Molinia varia*, with little to break its monotonous continuity except here and there *Juncus sylvaticus* and *Hydrocotyle*; occasionally in less shady spots it is replaced by *Erica Tetralix* and *Scirpus caespitosus*. In some instances there is an extensive growth of *Vaccinium Myrtillus* and *Galium hercynicum*, with smaller quantities of *Blechnum*. Here and there the soil is sufficiently calcareous to allow of the occurrence of *Inula Conyza*, *Carlina*, &c.

Where sand predominates we have *Digitalis*, *Solidago*, *Filago germanica*, *F. minima*, *Festuca sciuroides*, *Buda rubra*, *Ornithopus*, &c., and in one place *Illecebrum verticillatum*. In bare gravelly places exposed to full sunshine we have *Hypochoeris glabra*, *Teesdalia*, *Sagina subulata*, *Plantago Coronopus*, *Hypericum humifusum*, *Ornithopus*, and *Vicia lathyroides*. The small brooks and muddy ditches afford *Ranunculus hederaceus*, *Cardamine flexuosa*, *Limosella* (one locality), *Epilobium obscurum*, *E. palustre*, *Roripa palustris*. The partially wooded district round Sandhurst and Ambarrow, with the ornamental pieces of water, gives a home for a great number of Brambles, as well as for some very local aquatic plants. In these localities have been gathered *Rubus fissus*, *R. nessesensis*, *R. plicatus*, *R. Marshalli*, *R. nitidus*, *R. carpinifolius*, *R. pulcherrimus*, *R. Koehleri*, var. *cognatus*, *R. Lejeunei*, var. *ericetorum*, *R. Sprengelii*, *R. rosaceus*, *R. Questierii*, *R. Babingtonii*, *R. villicaulis*, *Capnoides claviculata*, *Myrica Gale*, *Rhamnus Frangula*, *Rosa obtusifolia*, *Carex pulicaris*, *C. canescens*, *Utricularia minor*, *U. major*, *Elatine Hydropiper*, *E. hexandra*, *Littorella*, *Eleocharis acicularis*, *Pilularia*, *Hieracium vulgatum*, *H. sciaphilum*, *H. rigidum*, var., *H. umbellatum*, and *Potentilla palustris*. The cultivated fields, in many cases of only recent reclamation, yield *Apera Spica-venti*, *Agrostis nigra*, *Filago apiculata*, *Silene anglica*, *Arnosensis*, *Mercurialis annua*, *Stachys arvensis*, *Calamintha arvensis*, and *Antirrhinum Orontium*.

The railway embankment gives a home to *Origanum*, *Calamintha officinalis*, *Hieracium umbellatum*, *H. boreale*, *Epilobium angustifolium*, *Serratula*, *Erigeron acre*, *Jasione*, and *Koeleria*. The ballast may have afforded calcareous matter which allows *Origanum* to flourish. The railway cutting near Wellington College has exposed a piece of stiff clay on which there is a very luxuriant growth of *Lycopodium inundatum*. The trenches have a great quantity of *Lotus uliginosus* and *Epilobium palustre*, and in such situations the great abundance of *Narthecium ossifragum* is a conspicuous feature.

In addition to the plants already enumerated for this area may be mentioned *Ranunculus sardous*, *R. Lenormandi*, *Viola canina*, *V. lactea*, *Impatiens parviflora*, *Chrysosplenium*, *Apium inundatum*, *Epilobium roseum*, *Oenanthe crocata*, *Galium elongatum*, *G. Witheringii*, *Valeriana dioica*, *Pulicaria vulgaris*, *Bidens cernua*, *B. tripartita*, *Carlina*, *Hieracium murorum*, *Campanula Rapunculus*, *Tanacetum*, *Anthemis nobilis*, *Anchusa officinalis*, *Anagallis tenella*, *Cuscuta Epithymum*, *Veronica scutellata*, *Pedicularis palustris*, *P. sylvatica*, *Leonurus*, *Polygonum dumetorum*, *Salix ambigua*, *Orchis incarnata*, *Narcissus Pseudo-narcissus*, *Juncus squarrosus*, *Scirpus pauciflorus*, *S. setaceus*, *Carex dioica*, *C. pilulifera*, *C. paniculata*, *C. laevigata*, *C. Pseudo-cyperus*, *C. fulva*, *C. leporina*, *Sieglingia*, *Festuca ovina*, var. *paludosa*, *F. rubra*, *Osmunda*, *Botrychium*, and *Dryopteris montana*.

The district about Loddon Bridge and Wokingham has a varied flora, as one might expect from the different soils which occur. In rapid succession come the alluvial meadows of the Thames, the gravelly soil in the neighbourhood of Reading, the clayey ground about Ruscombe, the sandy soil near Bearwood, and the gravelly ground near Twyford and at Wokingham and Hurst.

From Swallowfield to Twyford the Loddon flows through pleasant and more highly cultivated country, passing the pretty grounds and village of Arborfield, and a neighbourhood which has been made widely known by the author of *Our Village*.—Three Mile Cross was the residence of Miss Mitford, and frequent references to the Loddon will be found in the pages of her works. Between Arborfield and Twyford the stream passes through a rather flat and pastoral country, but its banks are adorned with a profuse growth of the Snowflake, locally called Loddon lilies, and with fine old alders, celebrated by Pope, who once lived in the neighbourhood at Binfield. An expedition by boat down the stream gives a succession of delightful views. The sedge-growth too is luxuriant and beautiful, and the willow bushes in many places are very picturesque. Later in the year a most charming sight is to be obtained of the bright grassy-green leaves of *Potamogeton fluitans* (or perhaps a hybrid), an abundant plant near Sandford Mill. The submerged leaves appear to be merely a net-work of veins in the clear bright water, so transparent is the pellucid parenchyma. In quiet pools may be found large masses of *Potamogeton alpinus*, while the rapid water of the shallows affords *P. flabellatus*.

The flora of the neighbourhood is likewise very interesting. The narrow sheltered roads are often bordered by deep ditches with a profuse sedge-growth. In one such locality *Carex elongata* is abundant. *Carex elata* occurs near the Loddon. *Carex vesicaria*, *C. Pseudo-cyperus*, *C. axillaris*, *C. acuta*, *C. remota*, *C. vulpina*, *C. muricata*, *C. acutiformis*, and others are to be found about these ditches, which besides the sedge vegetation afford also *Bidens cernua*, *B. tripartita*, an interesting variety

of *Scrophularia nodosa*, *Oenanthe crocata*, *Oe. fistulosa*, *Oe. Phellandrium*, *Epilobium tetragonum*, *E. obscurum*, *Callitriche hamulata*, *C. obtusangula*, *C. stagnalis*, *Ranunculus peltatus*, *R. trichophyllus*, *R. sceleratus*, *Myriophyllum spicatum*, *M. verticillatum*, *Peplis*, *Pulicaria vulgaris*, *Dipsacus pilosus*, *Potamogeton densum*, *P. crispum*, *Chenopodium rubrum*, *Atriplex deltoidea*, *Veronica Anagallis*, *Polygonum minus*, *P. mite*, *P. Hydropiper*, *P. maculatum*, *Nitella opaca*, *Chara fragilis*, *Panicularia plicata*, *Catabrosa*, and other species. In the drier lanes *Chrysanthemum Parthenium* occurs, and it is possibly a native here. *Lactuca virosa* is also found.

The heaths in this neighbourhood have been to a great extent cleared or absorbed, but the roadsides here and there show traces of the original flora in the occurrence of *Arabis perfoliata*, *Dianthus Armeria*, *Potentilla argentea*, *Viola lactea*, *Geranium lucidum*, *G. pyrenaicum*, *Trifolium arvense*, *T. striatum*, *T. subterraneum*, *T. filiforme*, *Sagina ciliata*, *Filago apiculata*, *F. minima*, *Ornithopus*, *Caucalis nodosa*, *Carum segetum*, *Fragaria berchertiensis*, *Stellaria umbrosa*, *Juncus diffusus*, *Vicia gemella*, *Veronica scutellata*, *Salvia Verbenaca*, *Cynoglossum officinale*, *Anthemis nobilis*, *Allium vineale*, *Ulex minor* (nanus), *Potentilla procumbens*, *P. mixta*, *Genista tinctoria*, and others, while the hedgerows afford *Rosa systyla*, *Rubus Hystrix*, *R. pulcherrimus*, *R. Lejeunei* var., and other species. Mr. G. D. Leslie says, 'In the meadows near the Loddon and St. Patrick's stream . . . the beautiful fritillaries . . . are to be found in great abundance.'

Near this part of the Loddon district is the fine park of Bearwood, which is situated on higher ground: its woods contain an interesting and varied flora, and are especially rich in forms of brambles. The park of Bulmarsh resembles that of Bearwood as regards the general character of its flora, but the borders of the lake which ornaments it are marked by a rich growth of bog plants. Unfortunately this part has not been thoroughly explored, for the owner refused me permission to investigate it. This country was probably at one time included in the Great Forest of Windsor, and possibly gave its name to the county, since in maps of no very ancient date the name 'Berruc Wood' appears round Oakingham, which is now written Wokingham, and Bearwood is probably a modern rendering of the name. In and around the park and grounds of Bearwood a large number of plants may be found, but it will be unnecessary to give these at length, since most of them have already been recorded as occurring in the district. A few of the more interesting, however, may be mentioned, such as *Epipactis latifolia*, *Rubus incurvatus*, *R. nitidus*, *R. carpinifolius*, *R. villicaulis*, *R. plicatus*, *R. pulcherrimus*, *R. Babingtonii*, *R. macrophyllus*, *R. rudis*, *R. Lejeunei* var., *Oenanthe Phellandrium*, *Scutellaria minor*, *Hieracium rigidum* var., *Geranium lucidum*, *Apium inundatum*, and *Scirpus fluitans*.

Some ponds near the beautiful church of Shottesbrook are the place of growth of a profusion of *Oenanthe Phellandrium*. A most beautiful

sight by one of these ponds is afforded by the abundance of *Lychnis Flos-cuculi*, which contrasts strangely with the ochreous tint of the anthers of *Alopecurus fulvus*, which is one of the chief occupants of the shallower portion of the water. The pond nearer the church is full of *Potamogeton crispum*, and by it grow *Roripa palustris* and *Juncus compressus*.

The flint walls of the church afford *Asplenium Adiantum-nigrum*, a very rare Berkshire plant which it is hoped that this reference may do nothing to injure. A seedling yew, probably from the fine tree near, springs from the stone-work of the upper part of the tower.

One of the small streams which run into the Loddon is called the Emme Brook. This rises in the Bagshot Sands beyond Wokingham from the north-eastern side of Easthampstead Plain, and drains the interesting Romano-British encampment known as Caesar's Camp, with its distinct double vallum enclosing an area of about 600 yards by 300 in its greatest breadth. The vallum is overgrown with *Vaccinium Myrtillus*. From the summit a very fine view is to be obtained over the wooded country as far as to Wokingham, and beyond that town the distant hills of Oxfordshire are to be seen. One of the paths leading from the Camp, as seen from the summit, shows a most beautiful mingling of the foliage of the chestnut, birch, oak, larch, beech, and pine. In the neighbourhood there is an extensive piece of bog land which affords *Potamogeton alpinus*, *P. polygonifolius*, *Schoenus*, *Rhynchospora alba*, *Eriophorum angustifolium*, *Narthecium*, the two common *Droseras*, and the usual bog plants.

The Broadwater drains the hilly and heathy district of Bracknell, and has a flora which is very similar to the one recently described. Easthampstead Park formerly yielded, and perhaps even now may contain, *Samolus Valerandi*: Swinley Lodge and its neighbourhood afford *Myrica Gale*, *Centunculus*, *Millegrana Radiola*, *Drosera longifolia*, *Lepidium heterophyllum*, var. *canescens* (*L. Smithii*), with many other of the usual bog and heath plants. The fine old oaks at Swinley are beautiful specimens. *Hypochaeris glabra*, *Teesdalia*, *Sagina subulata*, *Anthemis nobilis*, *Silene anglica*, and *Trifolium arrense* also occur, near Bracknell, in this vicinity. As the Broadwater leaves the Bagshot Sands it passes into a flat tract of country on the London Clay, through which it slowly winds in a very devious course, passing by Binfield, once the residence of Pope, Waltham, and Ruscombe, where Wm. Penn died. The country is so low and flat that the waters formerly inundated the country round for a considerable distance, the stream being then more worthy of its name and appearing on the map as Ruscombe Lake. Numerous ponds and the deep ditches by the roadsides are evidences of the former marshy condition of the country, which at one time was the habitat of *Damasonium*; careful searching may show that the plant is still to be found there.

Next to be considered is that portion of country drained by the main stream of the Thames between Reading and Maidenhead; it has a rich flora, and a considerable variety of soil and altitude. The highest ground in the Loddon district is to be found in it, and it contains some of the most beautiful scenery in the county.

After leaving Reading the picturesque village of Sonning is reached, with its bridge of eleven arches over the Thames. The Great Western Railway passes through a deep cutting between Reading and Twyford called the Sonning Cutting, on the sides of which *Filago apiculata* occurs in great plenty, and *Lycopsis arvensis*, *Reseda luteola*, and *Erodium cicutarium* are very abundant. *Lepidium campestre*, *L. heterophyllum*, var. *canescens* (*L. Smilicii*), *Erigeron acre*, *Verbascum nigrum*, *V. Blattaria*, and *Trifolium arvense* have also been found. In addition to the usual plants which have already been noted, the Thames here affords *Acorus Calamus*, *Leucojum aestivum*, *Dipsacus pilosus*, *Scirpus maritimus*, and *S. sylvaticus* have been recorded from the neighbourhood.

Wargrave¹, which is pleasantly situated on the Thames at the base of well-wooded chalk hills, is also in the main drainage of the Thames. Wargrave Marsh, which lies between the village and Henley, on the Berkshire side of the stream, is now to a considerable extent drained, but pools and backwaters still afford *Hydrocharis*, *Utricularia*, *Sium latifolium*, *Typha*, *Apium inundatum*, and the marshy meadows *Pedicularis palustris* and other marsh plants. *Cuscuta europaea* grows on nettles and other plants on both sides of the river².

The picturesque and well-wooded hills known as Bowsey Hill 454, Crazy Hill 336, and Ashley Hill 358 feet above the sea, with the contiguous common of Warren Row, afford not only a delightful country for walking, but also a very representative flora: here occur not only many of the plants characteristic of the Chalk formation, but the London Clay, of which the hills are to a great extent composed, gives a home to many marsh and bog plants. Here have been found *Daphne Mezereum*, *D. Laureola*, *Helleborus viridis*, *Veronica montana*, *Elymus europaeus*, *Melampyrum pratense*, *Lathyrus montanus*, *L. Nissolia*, *Hyoscyamus*, *Polygonatum multiflorum*, *Narcissus Pseudo-narcissus*, *Osmunda*, *Galanthus nivalis*, *Carex vesicaria*, *C. paniculata*, *C. flava*, *Ophrys muscifera*, *Orchis latifolia*, *Scutellaria minor*, *Cephalanthera pallens*, and *Fragaria elatior*.

Opposite to Henley, on the Berkshire side of the river, is the beautiful estate of Park Place, once the residence of Frederic, Prince of Wales. An avenue, in which *Clematis Vitalba* is a very conspicuous

¹ The sign of the George and Dragon at Wargrave was painted by Mr. G. D. Leslie and Mr. Hodgson.

² The flora of the river banks is so excellently described from an artistic point of view by Mr. G. D. Leslie in *Our River*, that I regret being unable to find space for it.

and artistic feature, leads from the road shortly above the river level to an eminence about 300 feet above the sea through ground carpeted with *Hypericum calycinum* and *Vinca minor*, and in which *Hypericum montanum* is also frequent. The views from various parts of the grounds over the lovely reaches of the Thames are scarcely to be over-estimated. The Druids' Temple in the grounds was brought from St. Heliers in Jersey, the stones being placed in the position which they originally occupied. About these grounds *Linaria repens*, *Veronica montana*, *Ophrys apifera*, *O. muscifera*, *Monotropa*, *Atropa*, *Verbascum nigrum*, *Helleborus foetidus*, *Astragalus glycyphyllos*, and *Hypericum montanum* occur, and *Bromus interruptus* has been found in fields in the neighbourhood.

The lowland fields between Aston and Marlow have a rich vegetation. The arable fields contain *Iberis amara*, *Alyssum calycinum*, *Papaver Rhoeas*, var. *strigosum*, and var. *Pryorii*, *Antirrhinum Orontium*, *Valerianella dentata*, *Crepis taraxacifolia*, *Linaria Elatina*; *L. spuria*, *L. viscida*, *Caucalis arvensis*, *Sherardia arvensis*, var. *Watravenii*, *Orobanche Trifolium-pratensis*, and *Calamintha arvensis*.

The meadows are often crimson with the abundance of *Pedicularis palustris* and *Orchis morio*, while in some places the gravelly subsoil is sufficiently calcareous to allow *Campanula glomerata*, *Avena pubescens*, and *Anthyllis* to appear. *Gyrostachis autumnalis* and *Dianthus Armeria* formerly occurred near Aston. *Salix purpurea* is abundant by the river. *Ribes nigrum*, *R. rubrum*, *Typha*, *Acorus*, *Cardamine amara*, *Hottonia*, *Limnanthemum*, and *Leucojum* are found by the river.

At Bisham the garden ground contains *Mercurialis annua* in considerable quantity, a very local plant in Berkshire. A lovely walk may be taken from Bisham, with the remains of its ancient abbey, to the beautiful Quarry Woods, and across Cookham Dean Common to the picturesque village of Cookham, which overlooks the long line of the hanging woods of Cliveden. In this short walk a charming country is traversed, and the prospects of the surrounding landscape are extremely pleasant. The number of plants which the walk affords is very considerable, as there is not only the marshland and meadow flowers but also the flora of the Chalk woods and commons. The following are amongst the interesting members of the flora met with in the vicinity:—*Ranunculus Lingua*, *R. parviflorus*, *Aquilegia*, *Arabis perfoliata*, *Iberis*, *Hypericum Androsaemum*, *H. montanum*, *Genista anglica*, *Hippocrepis*, *Astragalus glycyphyllos*, *Prunus Cerasus*, *Epilobium angustifolium*, *Myriophyllum verticillatum*, *M. spicatum*, *Sium latifolium*, *Oenanthe fistulosa*, *Oe. crocata*, *Oe. fluviatilis*, *Oe. Phellandrium*, *Caucalis nodosa*, *Asperula cynanchica*, *Lactuca virosa*, *Erigeron acre*, *Centaurea Cyanus*, *Crepis foetida* (?), *C. taraxacifolia*, *Campanula glomerata*, *C. Trachelium*, *Hypopitys*, *Blackstonia*, *Gentiana Amarella*, *Atropa*, *Hyoscyamus*, *Lithospermum officinale*, *Echium*, *Myosotis collina*, *Antirrhinum Orontium*, *Linaria repens*, *Pedicularis palustris*,

P. sylvatica, *Veronica montana*, *Calamintha officinalis*, *Nepeta Cataria*, *Lamium incisum*, *Utricularia vulgaris*, *Hottonia*, *Daphne Laureola*, *Carpinus*, *Hydrocharis*, *Orchis militaris*, *O. pyramidalis*, *Habenaria conopsea*, *H. chloroleuca*, *Ophrys apifera*, *O. muscifera*, *Neottia*, *Epipactis latifolia*, *E. media*, *Cephalanthera pallens*, *Iris foetidissima*, *Allium vineale*, *Juncoides Forsteri*, *Carex Pseudocyperus*, *C. vesicaria*, *Koeleria*, *Festuca rigida*, *F. scituroides*, *Elymus europaeus*, *Asplenium Ruta-muraria*, &c.

Near Maidenhead there is an extensive piece of common ground called Stubbing's Heath or Maidenhead Thicket, in which there is an entrenchment dating probably from Celtic times. The Thicket was a haunt of highway robbers as late as Leland's time. It lies on a clay and gravelly soil, and is not particularly rich in plants. Among those which have been found on it are *Viola Reichenbachiana*, *Rosa rubiginosa*, *R. verticillacantha*, *R. systyla*, *Rubus pulcherrimus*, *R. Radula*, *R. Gelettii*, *R. pyramidalis*, *R. villicaulis*, *Hyoscyamus*, *Hypericum montanum*, *Salix repens*, a form of *Gentiana Amarella*, *Filago spathulata*, and *Ranunculus parviflorus*. In the vicinity is Pinkney's Heath, where the hedges have *Carpinus* and *Pyrus Aria*, and the grassy common *Trifolium subterraneum*.

The railway cutting between Maidenhead and Bourne End affords a profuse growth of *Lactuca virosa*, while *Lathyrus latifolius*, *Kentranthus ruber*, *Sedum reflexum*, &c., are completely naturalized. Nearer the Maidenhead Station, on the main line, many other adventitious plants have been found, such as *Crepis taraxacifolia*, *Lepidium Draba*, *L. ruderalis*, *Erigeron canadense*, *Melilotus alba*, *M. indica*, *M. arvensis*, *Anthemis tinctoria*, *Panicum Crus-galli*, *Bunias orientalis*, *Artemisia Absinthium*, *Eruca sativa*, *Oenothera odorata*, *Salvia nemorosa*, and *S. verticillata*.

At Twyford, on the heathy ground near the Station, *Anthemis nobilis*, *Trifolium striatum*, *T. filiforme*, *T. scabrum*, *Filago apiculata*, *Viola canina*, and many forms of Brambles have been noticed. The hedges in the vicinity are often adorned with handsome bushes of *Rosa systyla*, var. *stylosa*, and *Dipsacus pilosus* is found by a damp hedge-bank.

The meadows between Bray and Windsor have a variety of *Galium*, which in this flora I have referred to *G. erectum*. *Lactuca virosa* is rather frequent in some gravelly fields near Bray.

The walls of Windsor Castle afforded a habitat in former times for a considerable number of plants; in the seventeenth century Dr. Manningham gathered a variety of *Polypodium vulgare* there, and in the early part of the eighteenth century Dr. Lightfoot noticed *Diplotaxis tenuifolia* on the walls of the King's Walk, but the stone-work is now too well pointed to allow of the growth of much mural vegetation. The walls overlooking the cloisters are partly in shade, and *Linaria Cymbalaria*, *Kentranthus ruber*, *Lactuca muralis*, and *Asplenium Ruta-muraria* have been noticed there. In the Home Park, and in some parts of the private grounds, *Medicago arabica* is very abundant; *Campanula*

Rapunculus is quite naturalized in the private portion of the Park, and the Snowdrop and Double Daffodil are also semi-wild. Near to and about the Grotto *Lactuca muralis* is common, and *Geranium sanguineum* and *Sedum dasiphylum* occur, but the latter are doubtless introduced. *Cerastophyllum*, *Chara fragilis*, *Potamogeton pusillum*, &c., occur in the streams, and *Oxalis stricta* is common in garden ground at Frogmore. From the summit of the Round Tower, the view, which has been admired by so many of Her Majesty's subjects, extends to twelve counties, Middlesex, Essex, Hertford, Bucks, Beds, Berks, Oxford, Hants, Surrey, Sussex, Wilts, and Kent, and includes such distant objects as the dome of St. Paul's and the towers of Westminster, Box-hill, Sevenoaks, Shooter's Hill, Nettlebed, Lady Hill, and Harrow.

The beauties of the Great Park have so often been described that a brief notice only will be required. Windsor Park was visited by the celebrated botanist, de l'Écluse, in the sixteenth century, when he recorded for the first time as Berkshire plants *Calluna* and *Erica citræa*. Shortly afterwards, Johnson, the author of the second edition of Gerard's Herbal, found *Rhynchospora alba*, while in later times Dr. Lightfoot, a tutor of Queen Charlotte's, and Dr. Goodenough, afterwards Bishop of Carlisle, botanized there, the latter recording some sedges from this locality in his classic monograph of this genus.

Windsor Forest has been often mentioned by our poets, and Pope's description of it is well known. Shelley composed much of his poem *Alastor* in the Forest.

The Long Avenue, which stretches for three miles from the Castle to the equestrian statue of George the Third by Westmacott, consists of upwards of a thousand trees. From the eminence, on which the statue is placed, the vista towards the Castle is very fine, and the view over the Thames valley extremely beautiful. In the immediate neighbourhood the botanist may notice many interesting plants. For instance, *Scutellaria minor*, *Peplis Portula*, *Lysimachia nemorum*, *Dryopteris montana*, *D. spinulosa*, *D. dilatata*, *Athyrium Filix-foemina*, *Festuca rubra*, var. *fallax*, *Aira praecox*, *A. caryophyllea*, *Deschampsia flexuosa*, *Ranunculus Flammula*, *R. hederaceus*, *Sagina ciliata*, *Hypericum humifusum*, *Blechnum*, *Carex laevigata*, *Calamagrostis epigeios*, &c.

The Forest is still of considerable extent, and there is considerable variation in the character of its scenery and in its vegetation. As James Thorne says, 'Once in the forest district, you are at no loss for scenery or objects of beauty and interest. Rough paths lead on every side to some wild woodland solitude, or to broad sterile heaths, or marsh green with a few osiers, or hilly ridge commanding a rich and varied prospect; and then there are traces of roads and camps, the work of conquerors of the earth, and spots where poets have lived, and scenes which they have celebrated, . . . or lonely heronries and rustic

villages and outlying old English farms.' Among the species gathered in the Forest district, east and north of Virginia Water, including Cranbourn Chase, are *Fragaria bercheriensis*, *Rubus Koehleri*, var. *pallidus*, *R. radula*, *R. villicaulis*, *Potentilla procumbens*, *Cynoglossum vulgare*, *Typha angustifolia*, *Bidens cernua*, and *Juncus compressus*.

The woodland country to the south and west of Virginia Water is the richer in plants; the close short turf surrounding Virginia Water yields *Sagina subulata*, *S. ciliata*, *Cerastium quaternellum*, *Myosotis versicolor*, *Aira praecox*, *A. caryophyllaea*, *Plantago Coronopus*, *Carex flava*, *C. pilulifera*, *Sieglelingia*, *Buda rubra*, and *Juncus squarrosus*.

The waterside has a rich sedge vegetation comprising *Carex canescens*, *C. paniculata*, *C. acutiformis*, *C. riparia*, *C. acuta*, *C. Goodenowii*, *C. echinata*, *C. remota*, *C. vulpina*, *C. muricata*, *C. flacca*, and *C. disticha*; and in addition to these are found *Acorus Calamus*, *Iris Pseudacorus*, *Lysimachia vulgaris*, *Equisetum limosum*, *Oenanthe crocata*, *Alnus glutinosa*, *Epilobium parviflorum*, *E. palustre*, *E. obscurum*, *Myosotis palustris*, *M. cespitosa*, *Ranunculus Flammula*, *Lythrum Salicaria*, *Molinia varia*, *Typha latifolia*, *Eupatorium cannabinum*, and *Bidens cernua*.

In the Lake are found *Ranunculus peltatus*, *Potamogeton obtusifolius*, *P. alpinus*, *P. densum*, *P. crispum*, *P. natans*, *P. polygonifolius*, *P. lucens*, *Myriophyllum spicatum*, *M. verticillatum*, *Littorella*, *Juncus bulbosus*, *Eleocharis acicularis*, *E. palustris*, *Scirpus fluitans*, *Nymphaea lutea*, *Castalia speciosa*, *Nitella opaca*, and in the Surrey portion *Elatine hexandra*.

In damp, shady places in the vicinity occurs, in one of its few British localities, a hybrid *Scutellaria*, which was discovered by my friend Mr. Nicholson in this place, growing with both its assumed parents.

The gravelly uplands in the Forest and Park give *Echium vulgare*, *Hieracium sciaphyllum*, *H. umbellatum*, *H. boreale*, *H. rigidum* var., *Solidago*, *Erigeron acre*, *Deschampsia flexuosa*, *Cynoglossum officinale*, *Malva moschata*, *Digitalis*, *Cerastium semidecandrum*, *Carex leporina*, *C. pilulifera*, *C. binervis*, *Agrostis canina*, *Festuca rigida*, *Hypericum pulchrum*, *H. humifusum*, *Erica cinerea*, *Melampyrum pratense*, *Veronica officinalis*, *Teucrium Scorodonia*, *Filago minima*, and *Ornithopus perpusillus*.

The arable fields bordering on Windsor Park, near the Surrey border, occasionally afford that beautiful grass, *Apera Spica-venti*.

The once celebrated and fashionable watering-place of Sunningwell is still interesting to the botanist for its historic piece of bog, which was a favourite hunting-place of the botanists of the seventeenth and eighteenth centuries, including Sir Joseph Banks, Dr. Lightfoot, Dr. Goodenough, and others.

The bog, although it has suffered much from the encroachment of the railway which passes through it, and by the building operations which are going on, still affords *Carex canescens* and *C. rostrata*, also

Narthecium ossifragum, *Anagallis tenella*, *Drosera rotundifolia*, *Hypericum elodes*, *Carex dioica*, *C. pulicaris*, *C. echinata*, *C. binervis*, *C. fulca*, *Eriophorum angustifolium*, *Scirpus caespitosus*, *S. pauciflorus*, *S. fluitans*, *Eleocharis multicaulis*, *Rhynchospora alba*, *Ranunculus Lenormandi*, *R. hederaceus*, *Epilobium palustre*, *Molinia*, *Festuca ovina*, var. *paludosa*, *Chara vulgaris*, *Erica Tetralix*, and *Dryopteris dilatata*.

THE BOTANOLOGIA OF BERKSHIRE.

TURNER.

The first notice of a Berkshire plant appears in a book published by WILLIAM TURNER in A.D. 1548, and entitled *The Names of Herbes in Graeke, Latin, Englishe, Duche, and Frenche*, in which it is stated that '*Clinopodium* groweth plentuously aboute Bon by Rehne-syde; I heare saye that it groweth also about Oxford.' Of *Teucrium Scordium* Turner says: 'I heare saye that *Scordium* groweth also besyde Oxforde.' The identity of the former plant is not quite certain. Mr. Britten, in a reprint of the above work by the English Dialect Society dated 1881, identified it with *Calamintha Clinopodium*. In the *Flora of Oxfordshire* I placed it with some doubt under *C. Acinos* (*C. arvensis*); the figure and description in Turner's *Herbal* (p. 150) do not suggest *C. Clinopodium* to me. C. Bauhin, however, treats it as synonymous with that plant, as does Dr. Trimen in the *Flora of Middlesex*.

William Turner was born at Morpeth, in the county of Northumberland, about the year 1512. He is believed to have been the son of a tanner. We learn from Cooper's *Athenae Cantabrigienses* that he took the degree of Bachelor of Arts at Cambridge in 1529-1530, and was Fellow of his College (Pembroke) in 1531 (see Wood's *Athenae Oxonienses*, i. p. 361). He was still a Fellow when he issued his earliest botanical work, the *Libellus de re Herbaria novus*, published in 1538; this is a small treatise of twenty pages, and contains the earliest printed records of any British plants. No Berkshire or Oxfordshire records are given in it.

During his residence at Cambridge he formed the acquaintance of Ridley, and embraced the tenets of the Reformation, in support of which he published and preached, travelling, as we are told, 'through a good part of England, and preaching not only in towns but also in cities. In his rambles he settled for a time in Oxfordshire among several of his countrymen whom he found there, purposely for the conversation of men and books.' He was imprisoned and kept in close durance for a considerable time, but being at length set at liberty and banished from England he travelled into Italy. Here he spent some time, studying Botany under Luca Ghini at Bologna, and Medicine in various places. Having taken the degree of Doctor of Medicine either at Bologna or more probably at Ferrara, he retraced his steps through Switzerland, and visited Conrad Gesner at Zurich, and

a warm friendship thenceforward subsisted between the two. In 1543 he took up his residence at Basle, and the following year at Cologne. From these places he issued his controversial publications, which were prohibited in 1546 or 1547 by a proclamation of Henry VIII. On the accession of Edward VI he returned to England, and in 1548 published the work entitled *The Names of Herbes* above mentioned. On July 3, 1550, the Privy Council sent letters directing his election as Provost of Oriel College in the University of Oxford, but that headship appears to have been already filled up by the election of Joseph Smythe, B.D., on the preceding 17th of June. On the 27th day of the following September Dr. Turner wrote a letter to Sir William Cecil, praying that he might be appointed President of Magdalen College, Oxford, but Dr. Haddon was elected head of that College on the last day of that same month. Shortly after Turner was appointed to the Deanery of Wells. About this time (1551) he was incorporated M.D. at Oxford, and in the same year appeared the first volume of *The Herbal*, dedicated to the Lord Protector Somerset. In the preface the author says: 'I have in this boke taught the latine name, the greke, the englysh name, the duche and the frenche name, most commonly of every herbe that I write of.' In 1552 Turner was ordained priest, Ridley, Bishop of London, officiating. Six months later, on the accession of Mary, Turner again had to quit England. He took up his residence in Germany, where he remained during the whole of Mary's reign. On the accession of Elizabeth in 1558 he returned to England, and was reinstated in the Deanery of Wells. The second part of his '*Herball*' was printed at Cologne in 1562. In 1568 he published *The first and second parts of the Herbal*, &c., corrected and enlarged, together with a third part. To this work was added *A Booke of the Bathe of Baeth in England*, dedicated to Queen Elizabeth. In the completed Herbal *Teucrium Scordium* is again referred to as 'growing in Oxfordshyre in good plenty'; of *Ruscus* he says: 'This bushe groweth very plenteously in Barkeshyre.' The Kneholme or Butcher's Broom (*Ruscus aculeatus*) is thus the first precisely recorded Berkshire plant. Another probable Berkshire species is *Anemone Pulsatilla*, which is recorded in the following terms: 'It groweth about Oxford, as my friend Falconer told me'; but while the plate is *A. Pulsatilla*, the description points to *A. Nemorosa*. The woodcuts of Turner's *Herbal* are taken from Fuchs. Of the five hundred and twelve plates in Fuchs, Turner has used upwards of four hundred, and has added about ninety new ones. In some instances the figures have been misapplied, and in a few cases no description of the plate is given.

Turner died on July 7, 1568, and was buried on the 9th in the Church of St. Olave, Hart Street, Crutched Friars, where a tablet to his memory may be seen. For further particulars of Turner's life and

works, Mr. Daydon Jackson's reprint of the *Libellus*, privately printed in 1877, should be consulted. Turner's name is commemorated by Plumier in the genus *Turnera*. To the works of this early English botanist we are indebted for three indefinite Berkshire records and one more precise.

DE L'OBEL.

The next author from whom we obtain local plant-notices is MATTHIAS DE L'OBEL, or Lobelius, a native of Flanders, born at Lille in 1538. He early acquired a love of plants, and had a good opportunity of advancing his knowledge of them at Montpellier, where he studied medicine under the learned Rondeletius. (The botanical garden at Montpellier was not founded till 1598.) During his residence there he made some botanical excursions into the south of France. At Narbonne he made the acquaintance of Peter Pena, afterwards his fellow-labourer in the *Adversaria*, and he subsequently visited many parts of the continent. Having settled as a medical practitioner at Antwerp, he was appointed physician to the illustrious William, Prince of Orange. His *Adversaria Nova* was published in London in 1570-1571, and dedicated to Queen Elizabeth.

The plates in this work were mostly original, but inferior in style and accuracy to those of Clusius. The exact date of de l'Obel's removal to England is not known, but he appears to have been appointed Botanographer to King James I at some time between 1550 and 1559. In 1579 he reprinted his *Adversaria* at Antwerp. In the first edition we find *Parnassia palustris* first recorded as a British plant under the name of '*Gramen Parnassi hederaceum recentiorum*. In pratis et udis pascuis Angliæ ad Oxonium.' A form of *Acer campestre* is described on p. 443.

Sagittaria sagittifolia is referred to on p. 126 as '*Pistana Magonis sive Plinii*, *Sagittaria aquatica* . . . in Anglia prope Oxonium.' On p. 257 *Hydrocharis morsus-ranae* is called '*Alba Minor*,' and is also said to grow 'in via quæ Londino Oxonium et Bristoiam ducit.' The *Stirpium Historia* of the same author was also published at Antwerp in 1576. This work is much less copious in printed matter, the pages being occupied with woodcuts taken from de l'Écluse (Clusius), and borrowed by the printer Plantin for this purpose. I have a copy of the impressions of the plates alone, dated 1581. De l'Obel contemplated the preparation of a large work, which he intended to call *Stirpium Illustrationes*. This work he did not live to complete. De l'Obel had the care of the garden of Lord Zouch at Hackney. He died in 1616, aged 78 years. His name is perpetuated in the Linnean genus *Lobelia*. Four probable records of Berkshire plants are contained in his works.

GERARD.

In the *Hertall* of JOHN GERARD, or Gerarde, printed in London in 1597, will be found the next plant-records of Berkshire. The author of this work was born at Nantwich in Cheshire in 1545. He was educated for practice as a surgeon. On his removal to London before 1577 he

obtained the patronage of Lord Burleigh, who made him superintendent of the very large garden which he had in the Strand. Gerard's own garden was in Holborn. A catalogue of the plants in the latter garden was Gerard's first printed work, and appeared in 1596. It was dedicated to Lord Burleigh; the second edition, published in 1599, was dedicated to Sir Walter Raleigh. In 1597 the *Herball* was published; the foundation of the work was Dodoen's *Herbal*, and a great deal of the text was probably written by Dr. Priest. The figures are from the blocks used for the Dutch *Herbal* of Tabernaemontanus in his *Eicones* of 1590. In this way, with Dodoen's for his foundation, by taking in many plants from de l'Écluse and de l'Obel and by contributing twenty-five plates from his own stock, Gerard produced a volume which, being well timed and comprehending almost the whole of the subjects then known, being written in English and adorned with a more numerous set of figures than had accompanied any previous work of the kind in England, obtained a great repute. On p. 89 of this *Herbal* Gerard records *Nartheceium ossifragum* from a locality which may be either in Surrey or Berkshire, or even in both counties, under the name of *Asphodelus Lancastriae*. 'Thomas Edwards,' says Gerard, 'found this at the foote of a hill in the west part of England, called Bagshot hill, neere unto a village of the same name.' On p. 535 *Teucrium Scordium* is definitely added to the Berkshire Flora. Gerard says: 'it groweth neere to Oxenford by Ruley on both sides of the water, and in a medowe by Abington called Nietford.' On p. 803 *Alchimilla* (*A. vulgaris*), Lion's foot or Ladies' Mantle, is reported from many places 'in Barkshire.' On p. 569 *Cardiaca*, Motherwoort, is said to occur 'among rubbish in stonie and other barren and rough places, especially about Oxford.' On p. 337 we read that *Sagittaria major* and *S. minor* grow in the ditches near the walls of Oxford. This refers to *Sagittaria sagittifolia* already recorded by de l'Obel, *Sagittaria minor* being only a small form of the plant. Four species are thus added to our list. Gerard died in 1612, and was buried in St. Andrew's, Holborn. Plumier named the genus *Gerardia* after him.

Reference has been made to the works of CLUSIUS, more properly CLUSIUS. CHARLES DE L'ÉCLUSE, an eminent botanist, born at Arras in the French Netherlands in 1526. He was educated at Ghent and Louvain. Having always had a great desire to see other countries, at the age of twenty-three he visited Germany, where he imbibed a taste for natural history and especially for botany. He afterwards travelled through the south of France, and in Spain and Portugal, chiefly with the view of studying the flora of those countries, and this he amply illustrated. He visited England several times, and on one of these occasions he went to Windsor and noticed there *Calluna* and *Erica cinerea*, both new records. In 1573 he was invited by Maximilian II to Vienna. In

1593 he was chosen professor of Botany at Leyden, and resided there in great reputation till his death in 1609. His principal publications are his *Rariorum aliquot Stirpium per Hispanias observatarum Historia*, with about 220 admirable woodcuts, printed at Antwerp in 1576, and his *Rariorum aliquot Stirpium per Pannoniam, Austriam et vicinas quasdam provincias observatarum Historia*, an octavo volume with above 350 woodcuts, published at Antwerp in 1583. In 1601 these two volumes were republished in folio with some additions of garden plants, a treatise on Fungi, some of his letters, and Pena's account of Mount Baldus. This is the edition in common use. In it are the two Berkshire records before alluded to.

GOODYER. JOHN GOODYER, of Mapledurham in Hampshire, who, according to Britten and Boulger's *Biographical Index of British Botanists*, flourished from 1597 to 1652, is referred to by Gerard in the *Herball* and by Johnson in the preface to his edition of Gerard as 'the only assistant I had in this worke, which was Mr. John Goodyer—from whom I received many accurate descriptions, and some other observations concerning plants; the which (desirous to give every man his due) I have caused to be so printed as they may be distinguished from the rest.' Parkinson, in the *Theatrum*, also quotes him. The reference to John Gordier on p. 708 is almost certainly a misprint for Goodyer. Parkinson, *loco citato*, says of *Geranium saxatile* (*G. lucidum*) that 'it was found in our owne countrey by Mr. John Gordier, a great lover . . . of plants; who besides this hath found in our countrey many other plants not imagined to grow in our Land. I wish,' he adds, 'there were many more of his minde, that not hindering their affaires at spare times would be industrious to search out and know what the ground bringeth forth, where their occasions are to be.' This record Pulteney in his *Sketches* on p. 135 ascribes to Goodyer, and on p. 153 to Gordier. Britten and Boulger in the *Index* give a separate heading to Gordier, apparently on the faith of Parkinson's note, but in the reprint say 'probably the same person.'

The copy of How's *Phytologia*, which is preserved in the Library of Magdalen College, Oxford, contains a note in Goodyer's handwriting to the effect that the book was received on April 30, 1659. This volume, How's own copy, contains many notes sent by Goodyer and referring principally to Hampshire plants; e. gr.: '*Geranium columbinum foliis dissectis pediculis longissimis flore magno*. I found it wild in the beginning of August, 1654. It is not described or pictured, that I find.' This is the first British record of *Geranium columbinum* (see Merrett's *Pinax*, p. 45, where it is said to grow in several places in Hampshire). A note in Goodyer's handwriting states that 'a school-master of Petersfield, Mr. Burton, gathered *Pulmonaria Gallica Lobelii* or Ladie Gill in flower, and brought it to J. G. on June 4, 1659. The

plant is *Jacobaea Pannonica* 2 Clus. C. Bauhin, p. 131 (68). The *Phytologia* contains also a notice of *Ludwigia*. Magdalen College also possesses a number of other manuscript notes by Goodyer, many of them containing very interesting remarks on plants, principally from Hampshire. Three of these records however refer to the Berkshire side of Oxford: '*Cyperus gramineus*, Lob., on the west side by Oxford neare Gloucester Gate, July 2, 1622'—this is *Scirpus sylvaticus*; '*Pastinaca aquatica latifolia* in the water ditches and in the river at Oxford, July 5, 1622,' is *Sium latifolium*; and *Carduus Ericephalus Corona fratum*, of which Goodyer says 'I found it in the highway neare Abingdon leading towards Oxford July 2, 1622,' is *Carduus Eriophorus*, L. It was probably through Goodyer that How's MSS., &c., came into the possession of Magdalen College. Goodyer died about 1662. Robert Brown named a genus of Orchids *Goodyera* in honour of him.

The next writer to claim our attention is THOMAS JOHNSON, who was born at Selby in Yorkshire about the beginning of the seventeenth century. He became an apothecary, and lived on Snow Hill in London. His first publications were his *Iter in agrum Cantianum*, and his *Ericetum Hampstedianum* of 1629, the first local catalogues printed in England. In 1633 he published his improved edition of Gerard's *Herbal* under the title of '*The Herball*, or General History of Plants gathered by John Gerard of London, very much enlarged and amended by Thomas Johnson, citizen and apothecary of London.' In this work Johnson records on p. 30, '*Gramen junceum leucanthemum*, White-floured rush grasse . . . upon a bogg neere the highway side at the corner of the great Parke . . . in Windsore Forest,' which is the first record of *Rhynchospora alba*. On p. 1115 we read '*Hippuris Coralloides*, Horse taile Coralline. My friend Mr. Leonard Buckner was the first that found this plant and brought it to me; he had it three miles beyond Oxford, a little on this side Euansham ferry, in a bog upon a common by the Beacon Hill neere Cumner wood. in the end of August, 1632.' This plant is considered by Messrs. Groves to have been probably *Chara vulgaris*, and, if so, this is the first record of the species as a British plant. In the same work six plants are given, which had been recorded by preceding writers as growing in Berkshire. Johnson's edition of the *Herbal* is a great improvement upon the original; it contains more than eight hundred plants not mentioned by Gerard, besides innumerable corrections. The plates amount altogether to 2,717. In 1634 he published his *Mercurius Botanicus*, containing the results of a journey through Oxford to Bristol and Bath and back to Southampton, the Isle of Wight, and Guildford, made with the professed design of investigating rare plants. About six hundred are enumerated, a few for the first

time in Britain. Only one is new to our flora, namely '*Cirsium Anglicum*, Lob., Single-headed Thistle, on Early Heath, a mile from Reading.' A second part, appearing in 1641, contained an additional record, '*Gramen arundinaceum acerosa gluma*, Park., Reede Grass with whitish tops,' as a probable Berkshire plant; it is said to grow '*ubique ad Thamesis ripas*,' and may be supposed to be *Phalaris arundinacea*. In 1643 the degree of M.D. was conferred upon him at Oxford. In the Parliamentary wars he became Lieutenant-Colonel to Sir Marmaduke Rawdon, and at the siege of Basing House received a shot in the shoulder, from which wound he died shortly after in 1644.

PARKIN-
SON.

The next botanical writer to be noticed is JOHN PARKINSON, who was born probably in Nottinghamshire in 1567. He, like Johnson, was brought up to be an apothecary, and lived in London. He was a contemporary of Gerard and de l'Obel during the latter part of their lives, and survived Johnson several years. In 1629 he published his *Paradisi in Sole Paradisus Terrestris*, and dedicated it to Queen Henrietta. This work, as its punning title implies, treats of cultivated plants, so that nothing is added by it to our list of native species. In 1640 Parkinson issued his *Theatrum Botanicum*, a herbal of 1,746 pages, in which are described nearly 3,800 plants, so that not only is it much larger than either of the herbals previously noticed, but the subject-matter is dealt with in a more original manner. The plates used were cut expressly for the work, but are inferior in execution to those of Gerard and others. Parkinson gave a precise locality for *Parnassia* in Berkshire on p. 429; he says that '*Gramen Parnassi vulgare*' grows 'on the other side of Oxford in the pasture next unto Botley in the highway'; and on p. 558 for *Anagallis femina*, which he terms '*Anagallis tenuifolia flore coeruleo*,' and says that 'it is found growing neere Battle by Oxford.' On p. 1451 *Myrica Gale* is noticed under the name of *Rhus sylvestris sive Myrtus Brabantica aut Anglica*, and is said to occur 'by old Windsor Parke corner.' The record of '*Asplenium sive Ceterach* on Beckensfield Church in Barkshire' is not correct; it should be Beaconsfield in Buckinghamshire. Parkinson was made apothecary to King James, and also King's Herbarist. He had a garden in Long Acre. He died in 1650, and was buried in St. Martin's in the Fields. The genus *Parkinsonia* was named by Plumier after him.

In 1632 the Oxford Botanic Garden was founded by Henry Earl of Danby. A piece of ground belonging to Magdalen College, which had in former times been used as a burying-ground by the Jews, was leased by the College to Lord Danby, and on it were built greenhouses and a gardener's dwelling-house. The garden, about five acres in extent, was surrounded by a goodly wall at a cost of £5,000. The Earl also endowed the garden, which was placed under the care of Jacob Bobart, a native of Brunswick. In 1648 JACOB BOBART

BOBART,
THE ELDER.

compiled a list of the plants cultivated in the garden under the title of *Catalogus Plantarum Horti Medici Oxoniensis*. It enumerates 1,600 species, of which about 600 are British. So large a number of species cultivated in the garden in so short a time after its foundation speaks well for the zeal and diligence of Bobart. There is a copy of a scarce print of him by Burghers in the Hope Collection, which represents him standing near the Danby Gate of the Garden; he is holding a plant in his hand, a stork is flying above him, and a goat is standing by; his beard, which on rejoicing days 'he used to wear tagged with silver,' is depicted as reaching to his waist. Underneath another print by Richardson in the same Collection is written:

'Thou Germane Prince of plants, each year to thee
Thousands of subjects grant a subsidie.'

Edmund Gayton wrote a poem on him in 1662, in which he notices the quaintly cut yew-trees at the entrance to the Garden, and calls them the Yewmen of the Guards; probably he was also the author of another ballad published in the same year, and entitled *On the Gyants of the Physic Garden!* For further particulars see Wood's *Athenae*, in which it is stated that Bobart showed to Ashmole in 1669 'many choice plants, herbs, grafts, and other curiosities, to his great content.' Bobart died on February 4, 1679, aged 80, and was buried at the Church of St. Peter in the East, Oxford, where a monument to his memory is placed on the outer side of the wall of the Church near the south-west corner, with the inscription: 'To the Pious memory of Jacob Bobart, a native German. A man of great integrity, chosen by the founder to be keeper of the Physic Garden. He dyed Feb. 4, 1679, in the 81st year of his age. As also of Mary his first wife, who dyed April 17, 1655, and Ann his second wife, who dyed Nov. 21, 1696, together with four of their children, Ann, Cordelia, Joseph, and Margaret, and also Elizabeth, daughter of their son Tilleman Bobart.'

What was really the first British Flora appeared in 1650, under How. the title of *Phytologia Britannica*. It was published anonymously, but its author was WILLIAM HOW, or Howe, who was born in London in 1619. How was a physician and a graduate of Oxford, where he took his M.A. degree in 1645, having been a Commoner of St. John's College. With many other scholars of that time he joined the King's army, in which he became captain of a troop of horse. Upon the downfall of the royal cause he continued his studies in medicine, and practised in that faculty. He died in 1656 and was buried in St. Margaret's, Westminster. The *Phytologia* is a small 12mo volume of 133 pages (largely copied verbatim from Johnson's *Mercurius* of 1634-41), in which the plants are arranged in the alphabetical order of the Latin names, with one or two synonyms from foreign authors, or

from Gerard, Parkinson, or de l'Obel. The place of growth of each species is noticed, and the localities of the rarer ones are given. About 1,220 plants, including a few mosses and fungi, are enumerated, but many are only varieties, and a few (above thirty) are not native. In this work fifteen records are of special interest as commemorating local habitats. The first is that of '*Adiantum album* . . . on the walls of the King's walks at Windsor'; this is *Asplenium Ruta-muraria*, L. The second of '*Aristolochia longa*, Long Berthwort, beyond Redding,' which is *A. Clematitis*, L. Ray afterwards cast doubts upon this record. The third of '*Armeria flore simplici*, William with single flower, in a wood beyond Redding.' The identity of this record is not made out with certainty; it possibly refers to *Dianthus deltoides*, L. The fourth record is that of *Camelina*, Ger. 'This groweth about one mile from Redding.' This plant is *Erysimum Cheiranthoides*, L. The fifth plant is '*Chamaelinum stellatum*, Starred dwarf flax. Beyond Redding.' The description given in Parkinson's *Theatrum* on p. 1336 is as follows: 'Dwarfe wilde Flax with starre-like flowers. The whole plant is scarce three inches high, having but one or two very small stalks at the most, and as small leaves ending in a very sharpe point; the flowers are few and small, made of five narrow pale greene leaves, pointed at the ends and standing forth in that manner that every flower resembleth a starre with a round umbone in the middle.'

We may almost certainly identify How's plant with *Centunculus*; if so, it is the first British record. Parkinson's plant is evidently *Asterotinum*, and How probably confused it with *Centunculus*. The sixth record is of '*Cirsium Anglicum minus*, Park., the Lesser single-headed Thistle, on Duckleton Lottes in Berkshire, Mr. Stonehouse.' This record is ambiguous, since Ducklington is in Oxfordshire; and I am unable to find any such plant in the *Theatrum*. *Cnicus acaulis*, which the locality suggests, is called *Carlina* in the *Theatrum*. *Cnicus pratensis*, of which it may be a small form, is already on record for Berkshire. The seventh plant, '*Echium flore albo*, Viper's Buglosse with white flowers, neere Oxford,' is doubtless *Echium vulgare*, L. The locality given may be in either county. The eighth record is again an ambiguous one. The plant is termed '*Euphrasia flore albo*, Eyebright, Cow-wheat with white flowers, neer Oxford, Mr. Martin.' A white-flowered form of *Euphrasia* may be intended, as the English name suggests, or *Bartsia Odontites*, a more likely plant to occur, or again *Melampyrum pratense*, to which the name Cow-wheat is usually applied, or lastly, *Echium vulgare*, which Parkinson terms *Euphrasia*. The choice of the last name is rendered less happy by the fact that How has just before mentioned that species; however, this is not conclusive, since both How and Gerard were not by any means well

read in synonymy, and on more than one occasion recorded the same plant under two names. The ninth record is a definite one, '*Millefolium palustre galericulatum*, Ger. . . Hooded Water Milfoile. About Oxford.' This is *Utricularia vulgaris*, L. The tenth, a possible Berkshire record, although usually considered to be in Hertfordshire, is that of the Frog Orchis, called by How '*Orchis Batrachites*, Frog Satyrion,' which he says grows 'by Barkway'.¹ Merrett's *Pinax*, as will be seen, adds 'and other places round Oxford.' The plant is *Habenaria viridis*, Br. The eleventh plant recorded is a form of *Papaver Rhæas*, L., namely, 'flore variegato, near Redding.' The twelfth, '*Pœonia foemina*, Female Peiony,' is not a native, being of garden origin and no longer to be found in the locality given by How. The thirteenth recorded species, one already noticed, is an undoubted plant of the county still to be found 'by Redding,' *Sium latifolium*, L., which How gives as '*Sium majus latifolium*, Ger., Great water Parsnep,' though Gerard spoke of it as simply *Sium majus*. The fourteenth notice is of '*Solanum lignosum flore albo*. In a lane going to Newbridge from Tubney,' found by Mr. Stonehouse—a white-flowered form of *Solanum Dulcamara*, L. The fifteenth plant is '*Verbascum foemina flore luteo magno*, Bauhine's female Mulleine with great yellow flowers. Found by Redding.' This may possibly have been *Verbascum Thapsus*, L. or *V. nigrum*. The sixteenth is '*Verbascum octavum*, Caes., *Blattaria Phœnicia*, Tab., Flore purpureo, Gesn., Purple Moth Mulleine. Near Oxford, Mr. Thomas.' Most likely the semi-naturalized *V. Blattaria*, L., not the true *V. Phœnicia*.

The foregoing notices of plants recorded by How and others have been dealt with at some length in order to show that the identification of these early records is by no means easy or in many cases precise; indeed, many of these references have little value in a scientific sense, although they may possess some antiquarian interest.

In the Library of Magdalen College is preserved an interleaved copy of the *Phytologia* which evidently belonged to How, as it contains a large number of MS. notes added by How from material supplied by Wm. Browne, John Goodyer, and others. The words 'Rec. 30 Apr. 1659' are inscribed on the first page in Goodyer's handwriting. On the death of Goodyer the book probably came into the possession of Wm. Browne, Fellow of Magdalen College, and the general notes show that How contemplated a second edition of the work. Many of the records in it were afterwards given in Merrett's *Pinax*. The notes of principal interest to our Berkshire flora are as follows: '*Cynoglossum flore albo*, neere Redding'; this refers to a white-flowered form of *C. officinale* (see Catalogue of the Oxford Botanic Garden).

¹ ? In Hertfordshire, but not cited by Mr. Pryor in the Flora of that county.

'*Cotula alba* et flore pleno et luteo-viridi reperitur. Hujus decoctum commendant in hydropica plurimi. Dorcestriam versus Comitatus Oxoniensis, via regia vulgo Honey Fixlong, Wm. Browne.' The plant is *Anthemis Cotula*, L. The locality is in Oxfordshire. '*Geranium Columbinum minus, foliis magis dissectis et foliis minus dissectis*. In agris sterilibus variat flore albo, Gul. Browne.' Probably these are *G. molle* and *G. dissectum* and from the neighbourhood of Oxford. '*Orchis Antropophora Oreades altera*, Col., sive flore pallido rubris punctis notato quasi pruritu laborabat, femina, Bauh. et Park., *Orchis Antropophora* bruneo pallido, brachiis et cruribus saturate rubescentibus, The Red Shank Boy Satyrion. Hasce Orchides rariores in cretaceis quibusdam collibus observavit non procul a via communi qua itur Wallingfordio Reddingam per Comitatum Bercher. G. Browne.' These plants were probably *Orchis militaris*, *O. Stimia*, and *Habenaria viridis*. '*Orchis sive Cynosorchis Austriaca flore albo*. Colle Chillswelliensi prope Oxoniam, G. Browne,' which is most likely *O. ustulata*. '*Periclymenum alterum Quercinis foliis*, perelegantem plantam, observavit in colle Chillswelliensi prope Oxoniam G. Browne.' This plant is a form of *Lonicera Periclymenum*, '*Ranunculus pumilus floribus deciduis*.' This may have been *R. parviflorus*, or an abnormal form of *R. bulbosus*, or possibly *R. auricomus*. '*Echium Scorpioides minus flosculis luteis*, Bauh. Pin. 254. Grows within 3 miles of Redding plentifully; Browne.' Probably *Myosotis versicolor*.

The Bodleian Library possesses a copy of the *Phytologia Britannica* which at one time belonged to William How, and in which there are a few notes in his handwriting. Among these may be mentioned '*Hederula aquatica*. In a ditch by Bermondsey House, neere London. In aquis restilibus juxta Peterburgium.' This plant is *Lemna trisulca*. No records of plants from Oxfordshire or Berkshire are given, but the record of *Cirsium* on p. 30 is altered to *Cirsium aliud Anglicum*.

Magdalen College possesses also a large number of papers belonging to How. Of these one portion in his handwriting is probably the copy used in the preparation of his second publication, entitled '*Mathiæ de L'Obel, M.D., botanographi regii eximii, Stirpium Illustrationes, purimas elaborantes inauditas plantas subreptitiis Joh. Parkinsoni rhapsodiis (ex codice MS. insalutato) sparsim gravatae, ejusdem adjecta sunt ad calcem Theatri Botanici Ἀπαρτήματα, Lond. 1655.*' This work criticizes Parkinson severely; it contains many plant-records from the neighbourhood of London and from Kent. The rest of the papers are chiefly de l'Obel's own notes, which How says he obtained by purchase and was thus enabled to do justice to de L'Obel, whom he thought that Parkinson and Johnson had neglected. The notes are attached to leaves of the *Adversaria*, the woodcuts of which have been roughly coloured.

WILLIAM COLES, or Cole, has given us the next additions to the Berkshire list. These will be found in the publication *Adam in Eden, or Nature's Paradise. The History of Plants, Fruits, Herbs and Flowers with their several names, whether Greek, Latin, or English; the places where they grow; their descriptions and kinds; their times of flowering and decreasing; as also their several signatures, &c.* Lond. 1657. Many testimonials are prefixed to it. The writer of one says:—

'In yew there's poyson, though there's none in you . . .
 Ile say no more, your Books themselves will praise,
 And every garden yield you verdant Bayes;
 And they that find the good with all their souls
 Will wish Newcastle may send all such Coles.'

Mr. Wharton finishes another metrical testimonial by urging him thus:—

'Go on (Brave Soul) and perfect this Design
 Whilst we conspire to make your glory shine,
 And (with respect to learning) fancy still,
 That Coles have writ, as fair, as any Quill.'

Coles was born at Adderbury in Oxfordshire in 1626. After the usual elementary instruction he entered at Merton College, and took the degree of B.A. in 1650. He afterwards settled at Putney, and published in 1656 the *Art of Simpling*, dedicated to Elias Ashmole, and in 1657 the work mentioned above. Upon the Restoration of Charles II he was appointed Secretary to Dr. Duppa, Bishop of Winchester. He died at the early age of thirty-six. His additions to the flora of Oxfordshire were important and interesting, but he contributed only four species to the Berkshire list. These are *Lily of the Valley* and *The Yellow Archangel*, the *Round-leaved Sundew* from Bagley Wood, and the *Adder's Tongue* from near Botley. Coles also mentions the *Butcher's Broom*, *Birchwort*, and *Utricularia* as occurring in the county.

In 1658 the Catalogue of the Oxford Garden, already alluded to, was republished in a much improved form by the joint labours of Dr. Phillip Stephens, Fellow of New College and sometime Principal of Magdalen Hall, William Browne, Fellow of Magdalen College, who will be noticed again further on, Jacob Bobart, the first Keeper of the Garden, and his son Jacob Bobart, afterwards Professor of Botany at Oxford, under the title, *Catalogus Horti Botanici Oxoniensis*. The references given by the authors of this Catalogue to the pagination of the various writers who are cited appears to be the earliest British instance of the kind. One plant is given in it as coming from Berkshire, '*Cynoglossum flore albido*, Bauh. Pin., Whitish Hound's-tongue, brought from Reading, where it was shewed us by Mr. Watlington.' This is *C. officinale, forma alba*. There is also an Oxfordshire locality given for a *Potamogeton*, which is probably *P. pectinatus*. Three laudatory poems are prefixed to the Catalogue.

BROWNE.

WILLIAM BROWNE, or Brown, was a native of Oxford, and was educated at Magdalen College. We learn from Dr. Bloxam's *Register* that he took his B.A. degree in 1647, his M.A. degree in 1650, and his B.D. degree in 1665. He became Fellow in 1657, was Praelector of Moral Philosophy in 1658, Dean of Divinity in 1659, and Vice-President in 1669-70. He died in 1678. Bloxam says: 'In 1652, July 2, Anthony Wood was examined for the degree of Bachelor of Arts in the Natural Philosophy School by Wm. Browne of Magdalen College, a native of Oxford' (see Wood's *Diary*). He was son of Wm. Brown, Mercer of Oxford, and was born in St. Mary's parish. See Peshall's *City of Oxford*, add. 29. 'This divine, who was an Oxford man born, was one of the best Botanists of the time, and had the chief hand in the composing of a book entitled a Catalogue of the Oxford Gardens. This Mr. Browne died suddenly on March 25, 1678, aged fifty or thereabouts, and was buried in the Antechapel of Magdalen College, of which he was a Fellow,' Wood's *Fasti*, ii. 282. On a black marble gravestone under the north-west wall is the following inscription: 'H. S. E. Gulielmus Browne, S.T.B., Hujus Collegii Socius. Vir industriae indefessae et eruditionis perspectae, qui Sanctae Theologiae horas compositas Rei Botanicae succesivas impendens in utraque emicuit. Apoplexia correptus succubuit fato multum lugendo nisi vixisset, indies moriturus. Ob. Mar. 25, anno aetatis 49 MDCLXXVIII.' He was son of Jo:hn [sic] Browne, sometime one of the Bailiffs of the City of Oxford,' Wood's *Hist.* p. 344 (1786), ed. Gutch.

Browne contributed many plant-records, as will be seen presently, to Merrett's *Pinax*; among them those of the three Orchises which have been referred by subsequent writers to *Orchis militaris*, *O. Simia*, and *Acerus anthropophora*, but the last has never been verified; also *Orchis ustulata* and *Lonicera Periclymenum*. Contemporary writers, Merrett for example, gives the credit of preparing the *Oxford Garden Catalogue* in the chief part to Browne, and Anthony Wood says 'that he had the chief hand in it.' Merrett calls him 'Vir exercitatissimus et eruditissimus.'

The Bodleian Library acquired recently a copy of Lyte's *Herbal*, in which were a large number of MS. notes giving the habitats of plants chiefly from the neighbourhood of Oxford. The allusions by the writer of these notes to his college-grove and cloisters show that he was connected with Magdalen, no other college possessing both a grove and cloisters; and it is not improbable that the notes were written by Browne, though up to the present time no certain writing of Browne's has been discovered with which to compare them. They add about thirty-three species to the flora of Berkshire, as follows:—*Anthyllis Vulneraria*, *Veronica serpyllifolia*, *Linaria spuria*, *Cotyledon Umbilicus*, *Thalictrum flavum*, *Polygala serpyllacea*, *Reseda luteola*, *Lysimachia Nummularia*, *Mercurialis perennis*, *Coronopus procumbens*, *Sisymbrium Sophia*,

Lamium Galeobdolon, *Ophioglossum vulgatum*, *Poterium officinale*, *Solidago Virgaurea*, *Symphytum officinale*, *Tragopogon pratense*, *Campanula rotundifolia*, *C. Trachelium*, *Digitalis purpurea*, *Convallaria majalis*, *Calamintha arvensis*, *Teucrium Scorodonia*, *Blackstonia perfoliata*, *Inula Helenium*, *Helleborus foetidus*, *Sambucus Ebulus*, *Blechnum Spicant*, *Drosera rotundifolia*, *Paris quadrifolia*, *Melilotus officinalis*, *Stellaria holostea*, *Asperula odorata*, *Galium Cruciata*, *Helminthia Echioides*, *Conopodium denudatum*, *Roripa Nasturtium*, *Barbarea vulgaris*, *Thlaspi arvense*, *Allium vineale*, *A. ursinum*, and *Genista tinctoria*.

The copy of How's *Phytologia* in Magdalen College Library contains a considerable number of notes obtained from Browne. The Berkshire records have already been given. Among those from other counties the following may be noticed :—‘*Anagallis aquatica*, sive *Beccabunga flore albo*, in fossis aliquibus sub colle Headington prope Oxoniam.’ The plant is most likely *Veronica Beccabunga* with white flowers, subsequently noticed by Bobart. ‘*Atriplex marina latifolia tota rubra*; ad maris littus prope Shorem in Comitatu Sussex,’ with a description. ‘*Colchicum Anglicum purpureum duplici serie foliorum in flore*. C. *Anglicum saturate purpureum*. C. *Anglicum florum foliis ex albo et purpureo dimidiatim variegatis*. Haec tria proveniunt in prato aridissimo prope pagum vernacule Combe, Comitatu Oxoniensi, ubi flore albo plurima sunt et vulgaris purpurei millia. *Colchicum Anglicum*, foliis elegantissimis striatis in prato prope Corneberry, Comitatu Oxoniensi.’ ‘*Periclymenum sylvaticum triplici serie florum ex luteo virentium*, alioqui toto habitu a vulgari non dissimile, colle vulgo Shotover juxta Oxoniam.’ ‘*Solanum marinum*, *Dulcamaræ congener* . . . copiose reperitur ad maris littus juxta Shoram, Sussex.’ ‘*Trachelium minus flore albo* in pago Worplesdowne vocato, Comitatu Surrey, locus floribus albis admodum insignis.’ ‘*Plantago quinquenervia fimbriis latis ex aureo argenteis*; hanc nitidam plantam juxta Cornberry exploravi in Comitatu Oxoniensi.’

Our next author is ROBERT TURNER, of Holshot in Hampshire, who TURNER, R. published his *Botanologia* in 1664, with his portrait prefixed. This book contains a large number of Hampshire records, but only adds one plant to those previously recorded for Berkshire, namely, Juniper, which is said ‘to grow much upon the Hills and woody grounds in Berkshire, Oxfordshire, and Buckinghamshire.’

The next book containing Berkshire records is the *Pinax* already MERRETT. referred to, a work composed by CHRISTOPHER MERRETT, who was born in 1614 at Winchcombe in Gloucestershire, and graduated from Oriel College in Oxford, taking his B.A. degree in 1634. Like many of our botanical writers he was a member of the medical profession, and became M.D. in 1643. The *Pinax Rerum Naturalium Britannicarum* is a small octavo volume, published in 1666, in which are enumerated in

alphabetical order upwards of 1,400 plants, many however being only trivial varieties. Some of the species included are recorded for the first time as British plants. The *Pinax* contains about thirty Berkshire records; a few of these are ambiguously named and some others require verification. William Browne is cited for some of the records, and it is very probable that he supplied many more of the notes than those to which his name is attached. The plants mentioned as growing in the neighbourhood of Oxford are:—‘*Aristolochia longa*, Long Birthwort; near Redding, sed in loco ubi quondam fuit Monasterium, Mr. Brown.’ This verifies to some extent the previous doubtful record. The plant was probably only a garden-escape. ‘*Behen album hispidum*, Hairy Spatling Poppy, plentiful about Oxford,’ which is *Silene Cucubalus* (var. *S. puberula*, Jord.). A note by Browne respecting this plant is to be found in the Magdalen College copy of the *Phytologia*. ‘*Campanula Cymbalariae foliis*, Ger. 452, P. 652. In Bagley Wood near Oxford.’ The plant intended is *Cervicina hederacea*, and this record of a very local plant, which still occurs in the locality indicated, is most interesting. ‘*Caryophyllus pratensis*, Ger. 594. In a lane near Early Heath by Redding.’ This is *Dianthus Armeria*, L., and, like the preceding, is still to be found in the vicinity. ‘*Consolida major flore rubro*. By Redding.’ This is *Symphytum officinale*, L.; the red-flowered form is not uncommon. ‘*Fagus*, the Beech, in sylvis et montibus. On the first heath behind Redding, in the way to Oxford.’ ‘*Gramen Cyperoides spicatum*, Ger., Gramen foliis Caryophylleis spica squamata, P. 1160; variat, spica divulsa et simpliciter. In a bogg a mile westward from Oxford.’ The identification is by no means certain; the figure in Gerard suggests *Carex flacca*, Schreb.; the description points to that or possibly to a form of *C. panicea*, L. ‘*Gr. Cyperoides spica Echinata simpliciter*, Two miles southwards from Oxford in the boggs.’ Again, there is some considerable doubt as to the identification of this sedge; it is probably *Carex dioica*, L. ‘*Gramen Sparteum minimum Anglicum*, P. 1199. On the next place betwixt Windsor Forest and Redding where they dig Furz.’ An interesting notice, the plant being *Nardus stricta*, L., which is still a common grass of the district mentioned. ‘*Helleborine multicaulis radice perplexa*. By Cumner Wood in the way from Oxford to Eynsham Ferry, Mr. Pink.’ This species even Dillenius could not identify, and so placed it among the plantae dubiae in the *Synopsis*. Both *Epipactis latifolia* and *E. palustris* are found in the wood; Merrett’s *Helleborine* was probably *Epipactis latifolia*. ‘*Lunaria minor*, Small Moonwort. In montosis et ericetis; in several places near Oxford, and *L. minor ramosa* near the Blind Pinnocks.’ Undoubtedly *Botrychium Lunaria*, L., now all but extinct in the district. ‘*Millefolium aquaticum floridum*, Water Gilly-flower, P. 1256, *Viola palustris*, Ger. 826. In all the ditches about Oxford.’ The

plant is *Hottonia palustris*, L., and is still abundant. '*Millefolium aquaticum cornutum*, P. 1257. In the ditches about Oxford.' In the *Flora of Oxfordshire* this was referred by me to *Ceratophyllum*, as a specimen with a nearly similar name is contained in the Du Bois Herbarium, but a careful examination of the description in Parkinson's *Theatrum* induces me to believe now that a form of *Ranunculus aquatilis* is the plant in question. The next are the three Orchises which Mr. Browne found 'on several chalkey hills neer the high way from Wallingford to Redding on the Barkshire side of the river.' These have been identified by some authors with *Orchis militaris*, O. Simia, Lam., and *Aceras anthropophora*, Br., respectively. The two first have been verified; the last has never been re-found. It is very probable that *Habenaria viridis* was mistaken for it. It is true that Merrett also reprints a record of the Frog Orchis from How's *Phytologia*, adding 'in many places about Oxford.' '*Periclymenum foliis quercinis* non procul Oxonio, Mr. Jenner.' This is only a form of *Lonicera Periclymenum* recorded by Wm. Browne. '*Pinguicula sive Sanicula Eboracensis*, Butterwort. Plentiful about Oxford,' is certainly *Pinguicula vulgaris*, L. '*Potamogeton pusillum folio gramineo, caule rotundo*. In Thames neer Oxford.' From a specimen in the Du Bois herbarium at the Botanic Garden, Oxford, this is shown to be *Potamogeton pusillum*.' '*Potamogeton Capillaceum capitulis ad alas trifidis*, P. 1255-6 eum priore.' This is *P. pectinatum*, L. '*Rubus scandens instar Viornae*. By Maidenhead.' A specimen in the Sherardian herbarium at Oxford of *R. ulmifolius*, Schott. is similarly named; Dillenius placed it among the dubious plants. '*Sium medium foliis elegantissime dissectis*. In some ditches about Oxford.' This was referred by me in the *Flora of Oxfordshire* to a form of *S. latifolium*; it has since occurred to me that it may possibly have been meant for *S. erectum*, Huds. '*Symphytum flore Ceneritio*. Every where about Redding.' This is only another form of *S. officinale*. '*Trifolium pratense capite sertaceo*. In the meadows seven miles on this side of Oxford.' This entry refers to *T. repens*, L., with a foliaceous calyx. '*Vicia sylvatica flore albo*, P. 1072. Near Oxford, Mr. Bobart, Jun.' This is the beautiful *Vicia sylvatica*, L. '*Vicia repens flore rubro, siliquis longis, foliisque brevibus*. In a moor between Sunning and Maidenhead.' This is probably *V. angustifolia*, L. '*Orchis sphagodes major et minor*. In many places about Oxford'; probably *Habenaria chloroleuca*, Ridl. Three or four volumes of Merrett's plants are preserved in the Sloane Collection, Nos. 33, 34, at the British Museum, but the plants are unnamed and unlocalized. Merrett was buried in St. Andrew's, Holborn, in 1695.

ELIAS ASHMOLE was born at Lichfield on May 23, 1617. His father, ASHMOLE, a man of good family, followed the trade of a saddler. His mother was a near relative of James Pagitt, a Baron of the Exchequer.

Ashmole was educated at the Grammar School at Lichfield, in the cathedral of which city he was a chorister. In 1638, through the patronage of Baron Pagitt, he became a solicitor, and six years later was appointed King's Commissioner of Excise. In 1646 he was admitted into the order of free and accepted masons, in which year the first formal meeting of the body took place in England. According to Rees' *Cyclopaedia*, Ashmole in 1647 retired to Englefield in Berkshire, and applied himself to the study of botany. A rich widow appeared to be another attraction in the neighbourhood. After a repulse from the lady and a violent quarrel with the son of his charmer, he was successful in his suit, and in 1649 he became the husband of Lady Mainwaring and owner of considerable estates in Berkshire. On the Restoration he became the recipient of many royal favours and emoluments. He acquired from a Berkshire adept a taste for Alchemy. In 1652 he published the first volume of his *Theatrum Chemicum*. As he was fond of Botany he chose for his place of residence in London the house of John Tradescant, a scientific gardener of Lambeth. The large collection of curiosities which Tradescant and his father had accumulated was conveyed by deed of gift to Ashmole. In 1677 he offered this collection and his own additions to it to the University of Oxford on the condition that a suitable building should be provided for their accommodation. The University accepted the gift and built the Museum known as the Ashmolean, where the curiosities, which filled twelve wagons, were housed; Dr. Plot was appointed the first Curator in 1682. In 1690 Ashmole was entertained at Oxford and the degree of M.D. conferred upon him. He died in 1692 and was buried in the church of South Lambeth, where there is a monument to his memory. His library and MSS. were bequeathed to the University of Oxford. In the Bodleian Library there is a copy of the *Phytologia Britannica* which belonged to Ashmole, and which contains the following notes in his handwriting:—

'*Anagallis lutea Nemorum* [*Lysimachia nemorum*] in Tylehurst near Redding betwene the Church and Sir Peter Van Lore's house.'
'*Androsaemum magnum* [*Hypericum Androsaemum*] in my orchard at Bradfield.' '*Aristolochia longa* [*A. Clematidis*] at Mr. Yachell's house in Redding.' This was perhaps the origin of the record in the *Phytologia*. The plant was probably only a garden growth. Ashmole has placed his own initials to the foregoing entries and also those of J. W., which mean John Watlington. '*Blattaria flore albo flavescenti nondum descripta*. Mullein with white and yellow flowers. In Chaucer's Copps neere Redding, E. A., J. W.' '*Caryophyllata montana* [*Geum rivale*] in the King's Meade by Redding, E. A., J. W.' '*Chamaelinum stellatum* [*Centunculus minimus*] upon the end of the hills next Chaucer's Copps, E. A., J. W.' '*Euphrosine rubra* [*Bartsia Odontites*] found by E. A. in the orchard at

Bradfield in Berks.' '*Ferrum equinum* [*Hippocrepis comosa*] also upon Causham Hills neare Redding, E. A. & J. W.' The locality is in Oxfordshire. '*Filix florida* [*Osmunda regalis*] upon Bunnish heath near Redding, E. A.' '*Hypericum tomentosum* [*H. elodes*] upon Bullmarsh heath 2 miles off Redding, J. W.' '*Lunaria minor* [*Botrychium Lunaria*] in Stocker's wood within 4 miles of Oxford, E. A., J. W., & Mr. Bobert.' An Oxfordshire locality. '*Lysimachia lutea* [*L. vulgaris*]; it was found by Mr. Watlington by the river Kennet 3 miles off Reading.' By this is meant *L. vulgaris*, but it is somewhat doubtful whether the cross placed by Ashmole refers to this or to the rarer *L. thyrsiflora*; but as the latter is not likely to occur by the Kennet, the commoner plant was probably meant. '*Orchis Melittias* [*Ophrys apifera*] in my Orchard at Bradfield in Berks.' On p. 101 '*Radix cava*' is said to grow 'neere Oxford as you go to Stocker's Wood,' but *Capnoides cava* is not a native plant of Oxfordshire. A copy of Ashmole's Memoirs is in the British Museum. It is dated 1717, Lond. 12mo. Press-mark 615 a. 11. In these Memoirs, which contain incidents of the most trifling character, Ashmole says 'that he was initiated Free Mason at Warrington on Oct. 16, 1646,' that on Jan. 14, 1648, 'he went towards Bradfield from London,' and on June 6, 1648, he writes 'Having entered upon the study of Plants, this day about three of the clock was the first time I went simpling. Dr. Carter of Reading and Mr. Watlington an Apothecary there accompanied me.' He records on Oct. 23 'going towards London I was robbed in Maidenhead thicket'; on April 7, 1649, 'I came to Mr. Watlington's House to Table, who was an Apothecary of Reading and a very good botanist'; on April 25, 1649, 'My journey to the Physick garden at Oxford'; on Oct. 9, 1651, 'My father Backhouse and I went to see Mr. Goodier [Goodyer], the great botanist at Petersfield.'

JOHN WATLINGTON, the friend of Ashmole, who is described as an WATLINGTON, Apothecary of Reading and a very good botanist, was probably the TON, J. discoverer of many of the Berkshire plants mentioned in How's *Phytologia*, since in Ashmole's copy of that work the initials of 'J. W.' are placed against many of them. Among the plants so initialled are on p. 10, *Aristolochia* and *Armeria flore simplici*; on p. 16, '*Blattaria flore albo flavescenti nondum descripta*, Chaucer's Copps,' to which is added 'neere Redding'; on p. 19, '*Camelina*' [*Erysimum cheiranthoides*]; on p. 23, '*Carophyllata*' [*Geum rivale*]; on p. 26, '*Chamaelinum*' [*Centunculus*]; on p. 28, '*Cirsium anglicum*'; on p. 38, '*Erica tenuifolia*' [*E. cinerea*, var. *alba*]; on p. 40, '*Ferrum equinum*' [*Hippocrepis*]; on p. 61, '*Hypericum tomentosum* [*H. elodes*] upon Bullmarsh Heath, 2 miles from Redding'; on p. 70, '*Lunaria minor*' [*Botrychium*]; on p. 71, '*Lysimachia lutea*' [*L. vulgaris*]; on p. 88, '*Papaver Rhæas, flore variegato*, neere Redding'; on p. 127, '*Verbascum femina flore lutea magno*.' In the Catalogue of the

Oxford Botanic Garden he is said to have pointed out the white-flowered Hounds-tongue to the editors. John Watlington was buried at Reading on Oct. 2, 1659.

HARDING. A copy of Ray's *Catalogus Plantarum Angliæ* is contained in the British Museum Library with press-mark 968 f. 4-5, which formerly belonged to MICHAEL HARDING, of Trinity College, Oxford. He made a considerable number of notes in it relating to plants which he had observed in the neighbourhood, but only one Berkshire locality is mentioned, namely '*Asperula quinta Gerardi*. Small Red flowered Woodroof found near Hinksey,' which refers to *Asperula cynanchica*.

PLOT, ROBERT. ROBERT PLOT was born at Sutton Baron or Barne in Borden, Kent, in 1640. He was educated at Magdalen Hall, in the University of Oxford, and took the degree of B.A. in 1661, of M.A. in 1664, and of D.C.L. in 1671. He was elected a Fellow of the Royal Society in 1667. His *Natural History of Oxfordshire* appeared in 1677. This folio volume is divided into ten chapters, the sixth of which is devoted to plants; the few figures given are fairly good, and the descriptions clear. The plates are said by Pulteney to be the first copper-plates used in England. The species noticed are, as might be expected, almost exclusively such as occur in Oxfordshire: of *Viola palustris*, however, it is said that 'it grows most plentifully at Chilswell, in Berkshire, amongst the moistest boggs,' which is the first printed record of it as a Berkshire plant, though Morison, in the *Historia Oxoniensis* of 1680, states that both *Viola palustris* and *V. hirta* were detected by Jacob Bobart in 1670. Plot also records that '*Oenanthe aquatica minor*, Park. is common almost everywhere about Oxford,' the plant intended being *Oe. fistulosa*; and that '*Atriplex vulgaris sinuata spicata* is equally common on dunghills with *sinuata major*, amongst which we suppose it has hitherto lay hid.' The latter plant is probably *Atriplex patula* (see Parkinson's *Theatrum*, p. 748); the former I suggested in the *Flora of Oxfordshire* might be *Chenopodium rubrum* or a form of *C. album*; Plot's plants, without localities, which were named by Bobart, are in the Sloane Herbarium, but they do not assist us in determining the true names. Dr. Plot published in 1679 his *Natural History of Staffordshire*, which was reprinted in 1686. These two works elicited warm expressions of approval from Ray. Dr. Plot was the first Keeper of the Ashmolean Museum at Oxford, and was also Professor of Chemistry in that University. He died at Sutton Baron, leaving a large quantity of material for a natural history of Kent; and according to Gough's *British Topography* (see page 161) he had also collected material, which came into the possession of the late Mr. Warburton, for a natural history of Berkshire, but I have been unable to trace it.

In the *Natural History of Oxfordshire* Plot describes 'a kind of *Rosa*

canina,' which evidently refers to *R. arvensis*. Another edition of the *History* was published in 1705, but it added nothing to the flora of Oxfordshire or Berkshire. Adanson's genus *Plotia*, named after Plot, is the *Myrsine* of Linnaeus. There is a half-length portrait of Plot in oils in the Bodleian Library; he is represented sitting in the gown of a Doctor of Civil Law. A very valuable engraving of him is preserved in the Hope Collection.

Dr. Plot had many of the characteristics of the scientific collector. Hearne, writing in 1705, relates that Mr. Pullen of Magdalen Hall states that a very remarkable stone was lent to Dr. Plot, who never returned it, replying, when he was asked for it, 'that it was a rule amongst antiquaries to receive and never restore.' The inscription on Plot's monument, Hearne says, was written by Dr. Hudson, and Dr. Lhwyd added it to the account which he drew up of Dr. Plot's life at the beginning of the second edition of the *Natural History of Oxfordshire*. The original copy of this work, given by Dr. Plot to Bobart, is in the Library of the Botanic Garden at Oxford.

ROBERT MORISON was born at Aberdeen in 1620, the son of John MORISON, Morison and Anna Gray. He was educated at Aberdeen, being ROBERT. designed for the Church; but he devoted himself to the study of Mathematics, till he was diverted from it by becoming interested in Medicine and Botany. He took the degree of Doctor of Philosophy in 1638. His scientific pursuits were interrupted for a time at least by his loyalty, which induced him to join the army of King Charles, and he received a dangerous wound in the shoulder at the battle of Brigg, near Aberdeen, in which Middleton, the General of the Covenanters, was victorious. After the downfall of the Royal cause Morison, with many of his compatriots, retired to Paris. 'There,' we read, 'he was employed as tutor to a young gentleman of fortune named Bizet, and sedulously cultivated at the same time the studies necessary for his profession, learning the art of simpling or knowledge of plants and herbs under M. Roobin; and making great progress therein, in a short time, to the wonder of all, he was, upon Roobin's recommendation, taken into the service of Gaston, Duke of Orleans.' In 1648 he took the degree of Doctor of Physic at Angers. He had charge of the Duke's garden at Blois from 1650 to 1660, and during this period he devoted himself to the study of practical and theoretical botany, and began to plan a System. His royal patron, we are told, delighted to confer with him on the subject, and sent him on several botanical journeys to different parts of France, to Burgundy, the Lyonnais, Languedoc, and Brittany, for the purpose of enriching his garden, a catalogue of which was printed in 1653 by Abel Brunyer, physician to the Duke. A copy of this catalogue, with Morison's manuscript notes, is in the Library of the Botanic Garden at Oxford.

On the restoration of Charles the Second in 1660 Morison came with the King to England, was appointed his Botanic Professor and Overseer of the Royal Gardens, and received the title of King's Physician, and an allowance of £200 a year with a house and garden. Great temptations were offered by the Minister Fouquet to induce him to remain in France, but without success, 'tantus amor patriae Morisono.' Shortly afterwards he was chosen Fellow of the College of Physicians in London, and 'became highly valued and esteemed for his most admirable skill in Botany.' In 1669 a new and enlarged edition of the catalogue of the garden at Blois was published by Morison under the title of *Hortus Regius Blesensis*, &c. London, 1669, 12mo. This publication increased the author's reputation, and helped to recommend him for the appointment, which he afterwards obtained, of Botanical Professor at Oxford. It contains the rudiments of his method of classification, and professes to give a list of two hundred new plants; but many of these are only varieties, and some were already known. There were, however, among the number some new and rare plants of exotic, as well as of indigenous origin, the former being such as he had himself discovered in France. In this work is also given his 'Hallucinationes in Caspary Bauhini Pinacem,' which Haller justly called an 'invidiosum opus,' though he says at the same time that the remarks are for the most part true. The plants in the *Hortus Blesensis* are disposed in alphabetical order, and the work is accompanied by a double dedication to the King and to the Duke of York. In a dialogue at the end Morison teaches that the genera of plants should be established on characters drawn from the fruit, and not on any sensible qualities or supposed medicinal virtue.

Morison, having become known by this work and otherwise to Obadiah Walker, Master of University College, Oxford, was recommended by him to the Dean of Christ Church and other leading men of the University to be chosen Botanical Professor, 'whereupon by the great testimonies and recommendations of his worth he was elected on December 16, 1669, and was incorporated Doctor on the following day. He made his first entrance as botanical lecturer on September 2, 1670, and on the fifth of the same month translated himself to our Physic Garden, where he read in the middle of it (with a table before him) on herbs and plants thrice a week.' In 1674 Morison at Oxford 'edited from the manuscripts of Boccone, which had been acquired by Charles, son of Lord Hatton, a thin quarto volume illustrated with fifty-two plates, forty-five of which had been re-engraved after some less accurately finished, under Boccone's inspection. Many of these are nowhere else represented' (*Rees' Cyclop.*). Pulteney says that Morison caused the last seven plates to be re-engraved and published the work under the title of *Icones et Descriptiones rariorum Plantarum*

Melitae, Galliae et Italiae. Auctore Paulo Boccone. Oxford, 1674, pp. 96, tt. 52, figs. 119. The book is dedicated to Mr. Hatton. In 1672 Morison published, as a specimen of the great work which he was meditating, his *Plantarum Umbelliferarum Distributio nova, per Tabulas cognationis et affinitatis ex libro Naturae observata et detecta*, Oxoniae, 1672, folio, pp. 91, tt. 12. In this treatise the Umbelliferae are divided into nine orders, the genera of which are distinguished by the figure of the seed, with the help in some of the subdivisions of that of the leaf. They are illustrated by 150 figures of different fruits. The author has subjoined what he names 'Umbelliferous plants improperly so-called.' These are *Valeriana*, *Thalictrum*, *Filipendula*, *Valeriana Graeca*, *Pimpinella*, and *Sanguisorba*. The dedication is to the Duke of Ormonde. The plates are very good; one of *Thalictrum majus foliis rugosis trifidis* [*Thalictrum flavum*] is excellent, and was probably drawn from a local specimen. The only plant that we can claim for our flora is '*Oenanthe maxima* . . . , ad ripam Tamesis,' &c., which is *Oenanthe crocata* of Linnaeus, but the locality is by no means precise.

This specimen work, which by some is supposed to be really the first volume of the author's *Plantarum Historia Universalis Oxoniensis*, excited the attention of the learned, augmented Morison's reputation at home and abroad, and encouraged him to prosecute with vigour his magnum opus, which appeared soon after under the title of *Plantarum Historiae Universalis Oxoniensis, pars secunda; Seu Herbarum Distributio nova, per Tabulas cognationis et affinitatis, ex libro Naturae observata et detecta*. Oxoniae, folio, 1680, pp. 617. In this work all herbaceous plants are distributed into fifteen classes, the first five of which Morison lived to publish; four others were completed by him, and published after his death by Jacob Bobart; the remaining classes were completed and published by Bobart.

Sachs, in his *History of Botany*, on pp. 66-68, says of Morison that he was the first, after Cesalpino and Caspar Bauhin, who devoted himself to systematic botany, that is, to founding and perfecting the classification of plants. He was reproached by his contemporaries and successors with having borrowed without acknowledgement from Cesalpino, but this was an exaggeration. Morison commenced his efforts as a systematist with a careful examination of Caspar Bauhin's *Pinax*; there he obtained his conceptions of natural relationship in plants, and if he afterwards founded his own system more peculiarly on the form of the fruit, it was in a very different way from that adopted by Cesalpino. Linnaeus answers the above-mentioned reproach by the pertinent remark that Morison departs as far from Cesalpino in this point as he is inferior to him in the purity of his method. Sprengel, in his *History of Botany*, vol. ii. p. 30, suspects that Jung's manuscript, which was communicated by Hartlieb to Ray in

1661, was not unknown to Morison, who might certainly have found in it much that suited his purpose. Sprengel also says that the 'Hallucinationes' are a well-grounded criticism of the arrangement of plants which the Bauhins had chosen; that Morison goes through the *Pinax* page by page, and shows what plants occupy a false position, and that it is certain that he laid the first foundation of a better arrangement and a more correct discrimination of genera and species. Sachs is of opinion that the *Plantarum Umbelliferarum Distributio nova* shows considerable advance, and is the first monograph which was intended to carry out systematic principles strictly within the limits of a single large family; and that one of its merits is that it contains for the first time careful representations of separate parts of plants, executed in copper-plate. Criticizing the *Historia*, Sachs says that the systematic arrangement in it is to be seen in Linnaeus' *Classes Plantarum*, but that Morison's merit lay less in the quality of what he did than in the fact that he was the first to renew the cultivation of systematic botany on a comprehensive scale. The number of Morison's adherents was never large; in Germany Paul Ammann, Professor at Leipsic, adopted his views in his *Character Plantarum Naturalis* (1685), and Paul Hermann, Professor at Leyden (1679-1695), after collecting plants in Ceylon for eight years, proposed a system founded on that of Morison, but which can scarcely be called an improvement upon it.

'Morison,' says Antony Wood (*Athenae Oxon.* vol. ii. p. 852), 'designed to go forward with one or more volumes, but being suddenly cut off the work ceased. However, there is now in the press at Oxford a volume, in folio, in continuance or pursuit of the last volume of Dr. Morison, written by Jacob Bobart, Keeper of the Physic Garden in Oxford, with annotations thereunto of the Eastern names by Dr. Thos. Hyde, Chief Keeper of the Bodleian Library. After which is done, there will come out another volume of Trees by the same hand. This Dr. Morison, who was esteemed the best in the world for his profession, taking a journey from Oxford to London and Westminster in order for the carrying on of his great designs of publishing one or more volumes of plants, did when in Westminster receive a bruise on his breast by the pole of a coach, as he was crossing the street between the end of St. Martin's Lane and Northumberland House near Charing Cross on the ninth day of November, 1683; and whereupon being soon after carried to his home in Green Street in Leycester fields, died next day to the great reluctance of all those that were lovers and admirers of his faculty. Afterwards he was buried in the Church of St. Martin in the Field within the liberty of Westminster.'

The portrait prefixed to the posthumous volume is a copy by White, from the oil-painting preserved in the Library of the Botanic Garden

at Oxford, and agrees well with Bobart's description of the Professor as 'a man of a healthy bodily frame and of plain and open manners.' It is recorded of him that he cultivated science for its own sake, with much less regard to his personal emolument than to the public good, a sordid love of gain having made no part of his character. The genus *Morisonia* was named after him by Plumier in his *Genera* (No. 36), and Linnaeus adopted it in his *Genera Plantarum* (No. 260).

In the same library there is a volume in Morison's handwriting labelled '*Morison Cat. 1653, Nomenclator stirpium mihi hucusque cognitarum et . . . collectarum.*' In this list a continental habitat is occasionally given, but a British locality only once or twice. The volume is much injured. The MS. of the *Hortus Blesensis* is said by Haller (vol. ii. p. 686) to be preserved 'in libris Hansii Sloane.' A letter from Morison applying for the arrears of his salary as Regius Professor of Botany is in the Bodleian Library.

It is frequently stated that Morison's Herbarium is preserved at Oxford. Hitherto we have been unable to find proof that any plant in the collection so named was gathered by Morison, nor does his handwriting appear on any specimen. The collection was almost certainly the sole work of Jacob Bobart the younger.

Morison had probably very little acquaintance with Berkshire field botany; we may conclude that it was Bobart who gave him information respecting the plants of the neighbourhood of Oxford, as his name is so often quoted by Morison. In the *Historia Oxoniensis*, on page 61, we read: '*Datur et alia hujus major species, quae altius conscendit; folia habet prioris latiora, hirsuta pariter; flores subalbidos, lineis seu striis potius caeruleis notatos; provenit sponte etiam et dumetis et sepibus comitatus Oxoniensis, unde in Hortum Botanicum publicum Universitatis haec species delata fuit a Jacobo Bobart, Hortulani filio.*' This is *Vicia sylvatica*, already given in Merrett's *Pinax*. On page 171 Morison adds *Ononis arvensis* to our list. On page 191 *Potentilla procumbens* is precisely localized as a Berkshire plant. On page 235 *Sisymbrium Thalianum* is recorded. On page 475 *Viola hirta* is called '*Viola Martia major hirsuta inodora*,' and is said to occur abundantly 'in montosis sylvis circa Oxonium'; and *Viola palustris*, recorded as '*Viola palustris rotundifolia glabra*,' is said to grow 'ad margines fluvii Cherwell inter Oxonium et Water Eaton' (Oxfordshire). '*Utraque haec species*,' it is added, '*quarta scilicet et quinta, detecta fuit a Jacobo Bobart decennio abhinc*,' so that Bobart, not Plot, was probably the discoverer of these two species. On page 511 is *Geranium dissectum*. On page 512 is *Geranium columbinum*. On page 512 *Geranium lucidum* is recorded; and on page 541 *Lychnis dioica*, L., is mentioned.

JOHN RAY, or WRAY, who did so much to reform botanical science, RAY, JOHN and to bring together in a compact form the descriptions and localities

of British plants, was born at Black Notley, near Braintree in Essex, on November 29, 1628. His father, Roger Ray, a blacksmith, gave him a good education, first at the Grammar School of Braintree, and subsequently at Cambridge, where he entered at St. Catherine's Hall on June 28, 1644, under the tuition of Mr. Duckfield, being then in his sixteenth year. In about two years' time he migrated to Trinity College, where he was fortunate in having the eminent Greek scholar Dr. Duport as his tutor, and made a friend of a fellow-student, afterwards the celebrated Dr. Isaac Barrow. In 1649 he was chosen a Junior Fellow of Trinity; in 1651 he took his Master of Arts degree and became a Senior Fellow of the same College. In the following years he filled various offices connected with the College, and acted as tutor to several gentlemen of position, the most eminent among them being Mr. Francis Willughby of Middleton Hall, in Warwickshire, who had the same love for natural science as Ray, and who became not only his patron but also his intimate friend and fellow-traveller. Mr. Willughby's posthumous works, edited by Ray, show how considerable were his claims to scientific honours.

Ray's first botanical work was the *Catalogus Plantarum circa Cantabrigiam nascentium*, printed at Cambridge in 1660, a small duodecimo volume of 182 pages. Previously to publishing this work Ray had visited several parts of England and Wales for the investigation of their native plants; this, his first botanical tour, as we gather from his itineraries, occupied nearly five weeks, from August 19 to September 18, 1658, and led him through the counties of Northampton, Warwick, Lincoln, Leicester, Derby, Lancaster, Chester, Salop, Worcester, and Gloucester, besides four of the Welsh counties. In 1661, in company with Mr. Willughby, he travelled through Huntingdonshire, Northamptonshire, Yorkshire, Durham, and Northumberland, returning through Cumberland and Westmoreland. In May, 1662, again accompanied by Mr. Willughby, he visited the South-West of England, passing through Devon and Cornwall, and taking the counties of Dorset, Wilts, and Hants on his way back in July. In the same year he was deprived of his Fellowship for refusing to sign the declaration against the Solemn League and Covenant. In 1663, with Mr. Willughby and some other friends, he visited the Continent, remaining abroad till 1665. In 1667, he again travelled through the Western Counties to Devon and Cornwall, coming back through London. In 1668, he and Mr. Willughby carried on many investigations into the movement of sap in trees.

In 1670 he published his first work on the general flora of Britain under the title of *Catalogus Plantarum Angliæ*, London, 1670, in an octavo volume of 358 pages. It is modelled upon his Catalogue of Cambridge plants as to the arrangement of the matter, but is more sparing in the citation of synonyms. It enumerates about one thousand

and fifty species of Phanerogams and Cryptogams. This is a smaller number than is given by How in the *Phytologia*, which contains twelve hundred species, or by Merrett in the *Pinax*, where more than fourteen hundred are enumerated; but Ray has been much more careful in selecting undoubted natives and in avoiding the introduction of mere forms or varieties. Neither in this work nor in his itineraries or subsequent publications is there evidence to show that he ever visited either Berkshire or Oxfordshire. One plant, however, from these counties is found in the *Catalogus*, and it is the first record for Britain. Some doubt exists as to which form of the Water Buttercup is intended, but it is probably *Ranunculus fluitans*, Lam., as suggested in my *Flora of Oxfordshire*. Ray calls it '*Ranunculo sive Polyanthemo aquatili albo affine millefolium Maratriphyllum fluitans*, J. B. In the river Ouse [Isis] about Oxford plentifully.' One more plant, *Polygonatum multiflorum*, is definitely recorded for the first time as a native of Berkshire, on page 248. In 1677 a second edition of the *Catalogus* appeared, and in it *Trigonella purpurascens*, Lam., is recorded for the first time from the neighbourhood of Oxford, where it does not appear to have been found since that time.

In 1673 he married a daughter of Mr. John Oakeley, of Launton, on the borders of Oxfordshire. In 1682 appeared his *Methodus Plantarum nova*, an octavo volume of 166 pages, which contains a natural arrangement of plants, based chiefly on the characters of the fruit. Ray adheres to the ancient division of the vegetable kingdom into trees, shrubs, and herbaceous plants. This work foreshadowed his magnum opus, the *Historia Plantarum generalis*, in two folio volumes, the first containing 984 pages, the second 985, which appeared in 1686 and 1688. In this work Ray has everywhere distinguished British from exotic plants, and has given the place of growth and time of flowering. The number of plants described is about 6,900. In the latter year he issued his *Fasciculus Stirpium Britannicarum*. This octavo volume contains nothing that is new to the Berkshire list, though the white-flowered Helleborine is noted from the Chiltern Woods in Oxfordshire; but it added several plants to the British flora from Wales, and from Cornwall and other counties. In 1690 appeared the *Synopsis Methodica Stirpium Britannicarum*, an octavo volume of 317 pages, dedicated to Thomas, son of his old friend Francis Willughby. In the preface, Ray acknowledges the assistance received from Mr. Bobart, Superintendent of the garden at Oxford, Dr. Edward Lhwyd, Dr. Robert Plot, and Mr. William Sherard, at that time Fellow of St. John's College, Oxford. The appendix contains a list of rare plants communicated by Mr. Bobart, and some new plants from Mr. Sherard. The book was such an advance on previous works of the kind that it became the pocket companion of every British botanist.

About 1690 he communicated to Mr. Gibson the provincial catalogues of plants, which appeared in 1695 in Camden's *Britannia*, but nothing additional was given for Berkshire. A second edition of the *Synopsis* was published in 1696, but the numerous additions were principally due to auxiliaries, and among them to Dr. Lhwyd, W. Moyle, and Vernon, Ray's advancing years and infirmities necessarily curtailing his field work. Sir James Smith says: 'Of all the systematic and practical Floras of any country, the second edition of Ray's *Synopsis* is the most perfect that ever came under my observation. Ray examined every plant recorded in his work and gathered most of them himself. He investigated their synonyms with consummate accuracy; and if the clearness and precision of other authors had equalled his, he would scarcely have committed an error.' More than a hundred species were added in this second edition to the British flora. The third volume of the *Historia* appeared in 1784. Ray died at Black Notley on January 17, 1705, and a monument was erected there to his memory.

The references to local plants in the first and second editions of the *Synopsis* are all due to correspondents of Ray, namely Bobart, Sherard, and Doody. The appendix to the first edition contains the first record as a British plant of *Leontodon hirtum* growing about Oxford; *Bromus asper*, a form of *Phragmites*, *Hieracium boreale*, and *Bromus erectus*, all recorded by Bobart, and *Salix Smithiana*, *S. rubra*, and *Stellaria palustris* by Sherard. To the second edition Bobart contributed records of a variety of *Scrophularia nodosa*, of *Deschampsia flexuosa*, of the sessile-fruited form of *Quercus Robur*, and of a white-fruited form of *Rubus corylifolius*; Sherard recorded in the same edition *Vicia Orobus* from near Wytham, almost certainly an error for *V. sylvatica*; while Mr. Doody states that several plants, *Lycopodium clavatum*, *Osmunda regalis*, *Hypericum elodes*, *Erica Tetralix*, *Scirpus caespitosus*, &c., occur on Bagshot Heath, which is in both Surrey and Berkshire. The precise records for the above will be found under their respective discoverer's names.

Ray's European Herbarium and his letters are in the British Museum. There is a portrait and bust of him in Trinity College, Cambridge, portraits in the National Portrait Gallery and at Kew, and there is one prefixed to the *Select Remains of the learned John Ray*, by William Derham, London, 1770. A Wedgwood medallion of him is preserved in the Library of the Botanic Garden at Oxford. Linnaeus perpetuated his name in the plant-genus *Rajania*, which Plumier had first established as *Jan-raia*. A genus *Raia* occurs also in Ichthyology.

In a copy of Ray's *Catalogus* in the possession of Mr. William Pamplin are the following manuscript notes, made shortly after the publication of the work. They were published on page 745 of the *Phytologist* for 1852. '*Alnus nigra baccifera*, with the common Alder by Coleman's

Moor nigh Reding.' The plants intended are *Rhamnus Frangula* and *Alnus glutinosa*. (The first mention in print of the latter species appears to be in Pope's poem of *Windsor Forest*, published in 1719: 'The Loddon slow, with verdant alders crowned.') '*Bursa pastoris minor*, Park. In the corne neer the hedge on the south side of the greate pond at Coleman's Moor.' The plant is *Teesdalia nudicaulis*. '*Hypericum elegantissimum non ramosum folio lato*, J. B. In the pits above the middle of Earl's field and in the land on the right hand side of Loddon bridge, 3 miles from Reding': *Hypericum montanum* was the plant intended. '*Lysimachia galericulata minor*. In Coleman's Moor and other places about Reding': *Scutellaria minor*. '*Oenanthe cicutae facie Lobelii*, Park. Near Loddon bridge and Coleman's Moor.' This is the *Oenanthe crocata* already on record.

JACOB BOBART, son of Jacob Bobart, the Keeper of the Botanic Garden BOBART, in Oxford, was born in 1641, and became an assistant in the garden THE under his father. While thus engaged he made a collection of plants, YOUNGER, principally from the garden. This collection, contained originally in twelve volumes, is still preserved at Oxford, and the plants remain in the sequence in which Bobart left them. Bobart assisted, and probably bore a large part, in the production of the second edition of the catalogue of the Oxford Garden.

The Library of the Garden contains a manuscript volume entitled *Bobart Catalogus—Catalogus Plantarum in Horto et circa Oxoniam crescentium*—an alphabetical list of plants by no means identical with either the first or second edition of the published catalogue, though compiled in a similar manner. Among the plants enumerated are: '*Campanula Cymbalariae folio vel folio hederaceo*, CB, p. 93. Ivie-leaved Bellflower.' '*Filix mas non ramosa pinnulis angustis raris profunde dentatis*, Ger. 1130. Chilswell' [Berkshire]. '*Lingua cervina crispa ex Devoniam*.' '*Scrophularia major*, Ger. 716.' '*Eadem foliis viridibus*.' Altogether about two thousand plants are enumerated, but unfortunately the Berkshire locality just mentioned is the only one that is given.

After Morison's death in 1683 Bobart was made Keeper of the Garden, and probably Professor of Botany at Oxford. In the *Historical Register of the University* the date of his appointment as Professor is given as 1684. On the title-page of the *Historia Oxoniensis* of 1699 he signs himself '*Horti Praefectus*.' In 1683 he published in the *Philosophical Transactions* a paper on the effects of the great frost of the preceding winter on trees and other plants. The volume, called the third of the *Plantarum Historia Universalis Oxoniensis*, was edited, and the greater part of it written, by Bobart, and was published at Oxford in 1699. A *Life of Morison* is prefixed, with a portrait drawn by White from the oil-painting by Sunman in the Library of the Garden; underneath the portrait are the following lines by Archibald Pitcairne, M.D. :—

'Quae, Morisone, viro potuit contingere major
 Gloria, Paeonium quam superasse genus?
 Ipse tibi palmam Phoebeus concedit Apollo,
 Laureaque est capiti quaelibet herba tuo.'

The *Life of Morison* has been attributed to Hyde, Plot, Bobart, and others. The manuscript of it is in the Sloane Collection, British Museum, and is in the handwriting of Pitcairne. Robert Gray, a kinsman of Morison, in a letter in the same collection (No. 3198) writes: 'Dear Sir,—Let me hear your answer as soon as you can. By the . . . I will send you the first part of this, for to send all at once wold have been too bulkish. These marks |=| sett to your own words. I have not yet showed this to Capt. Hatton, who is so mighty critical that nothing almost goeth down with him. The other part to be sent is almost all which you sent first, and is larger than this which I send now. Capt. Hatton counselled to have the ologia put in after the life, as is usually done in the books of the antients such as you see in the editions of Virgil, Ovid, and the lyke, but I fancy it may come better in this way, and specially for Ray's sake. I wish that there were more added to his character, as that he was communicative of his knowledge, a true friend, an honest countryman, true to his religion, whom neither the fair promises of the papists nor the threatenings of others would prevail to alter or change, loyal to his prince, and the like. This of religion is specially desired to be taken notice of. . . I beg you again to send this as soon back as possible with the alterations you may think fit. I am your's, R. GRAY. Jan. 8, [16]98.' The Captain Hatton here mentioned was the son of Lord Hatton of St. Germain's. He gave Boccone's plates and MSS. to Morison, who subsequently published them, as has been already noted.

It would seem that the *Life of Morison* was the work of more than one writer. Bobart may have supplied the botanical portion. The so-called third volume of the *Historia* was mainly his work, the last six classes of Morison's system being finished by him. In the preface to this volume, Bobart presents the reader with a general view of the writers on Botany from Theophrastus to the time of Morison, enumerating in chronological order the most learned authors in this department of knowledge that have appeared in the several nations of Europe. He then speaks of the patronage and encouragement which Morison had received from the University, and which had led him to undertake the work; and after lamenting the untimely death of the author, he expresses his grateful sense of the honour accruing to him from its prosecution. An interval of nearly twenty years had given Bobart the opportunity of inserting from the works of Ray, Hermann, Plukenet, the *Hortus Malabaricus* and other sources, a great number of plants unknown to Morison. English Botany had also had considerable additions made to it by the labours of Sloane, Petiver, Doody,

Sherard, and others. Hence it was that the new volume contained nearly double the number of species described in its predecessor; but the latter part of it proves too evidently, says Pulteney on p. 312 of his second volume, that it did not receive the finishing touches from the hand of Morison, for it appears in a very abridged form as compared with Morison's own work. Respecting the preface, Hearne writes in 1705, that 'it must be noted that after Mr. Jacob Bobart had finished his volume of the *History of Plants*, he writ a preface to it which he shewed to the Delegates of the Press; but they not approving of it because of the barbarity of the Latin, advised him to get somebody to mend it, and some of them pitched upon Mr. (now Dr.) Hudson. Accordingly the preface was put into Mr. Hudson's hands, and he drew it up in proper Latin. It was composed as Mr. Hudson worded it, and very few copies printed off; particularly there is one of them before Mr. Dyer's copy of the book at Oriel College; but Bobart, for reasons best known to himself, had quite a different one printed, drawn up partly by himself, partly by others, which is prefixed to all the copies except those few mentioned.'

Hearne makes the following entry under Nov. 6, 1705: 'Mr. Bobart was greatly assisted in the second volume of the Oxford History of Plants by Mr. Dale of Queen's College, who revised the whole and put it into proper Latin for him.' Dr. Thos. Hyde, Keeper of the Bodleian Library, added annotations on the Eastern names. Bobart's own interleaved copy is in the Library of the Botanic Garden at Oxford, where the plants collected by him are also preserved; among these are some of the plants which were to appear in the volume intended to contain the trees, &c. A MS. volume, giving a short outline of the arrangement which was to be followed, and a list of plants, not described but with names only, is also in the Library of the Garden. It has been already stated that Bobart supplied a list of plants to Ray's *Synopsis*; this list included the following plants; but, in order to save space, the names under which they are recorded are not cited here, but will be found under the respective species in the text of the Flora:—*Leontodon hirtum*, *Bromus ramosus*, a form of *Phragmites*, *Hieracium boreale*, and *Bromus erectus*. In the second edition of the *Synopsis* the following plants are given on Bobart's authority:—On p. 161, *Scrophularia nodosa*, var. *Bobarti*, Pryor; on p. 248, *Brachypodium pinnatum*; on p. 277, *Deschampsia flexuosa*; on p. 286, *Quercus Robur*, var. *femina* (Miller), (*Q. sessiliflora*, Salisb.); and on p. 309 a variety of *Rubus corylifolius*, Sm.

Bobart, in his new volume of the *Historia*, gives a considerable number of plant-records for Berkshire. The additions to the flora of the county are:—*Carex Pseudo-cyperus*, *C. panicea*, *Acorus Calamus*, *Caulalis latifolia*, *Galium tricornae*, *Stachys arvensis*, *Gentiana Pneumonanthe*, and *Cephalanthera pallens*. *Drosera anglica* (not represented in Bobart's herba-

rium), *Chara hispida*, *Myriophyllum alterniflorum*, *Limnanthemum peltatum*, *Dryopteris dilatata*, *D. Thelypteris* or *D. montana*, and *Osmunda regalis*, already recorded by Doody, but here definitely given as a Berkshire plant. *Orchis Simia* and *Militaris*, which are represented in the herbarium, are also mentioned.

In the Du Bois herbarium there is a specimen of *Lonicera Caprifolium* labelled '*Periclymenum albo perfoliatum serotinum*. D. Harding,' with the note 'Mr. Scrousbey hath it from Hinksey.' This is the only information respecting its place of growth. In the same herbarium there is a specimen of *Polystichum angulare* gathered near Newbury by Bobart. In Hearne's *Collections* (vol. ii. of Doble's edition), under date May 21-24, 1711, is a letter of his in which he says: 'Tell him [Mr. Brokesby] that Mr. Bobart has found Carawaies [*Carum Carvi*] in a close near Audley, which is not far from Reading. 'Tis a good distance from any garden, and he took it for certain to be wild.'

Bobart is said to have been of a humorous disposition, and Dr. Grey in his notes on Hudibras relates 'that he transformed a dead rat into the feigned figure of a dragon, by thrusting in taper sharp sticks which distended the skin, till it resembled wings, and altered its head and tail. It was then allowed to dry very hard, when it so imposed on the naturalists to whom it was shown that they immediately pronounced it a dragon, and several fine copies of verses were written on so rare a subject. A description of the *lusus naturae* was sent to Dr. Magliabecchi, Librarian to the Grand Duke of Tuscany, but at last Mr. Bobart owned the cheat. However, it was looked upon as a master-piece of art, and as such deposited in the Museum or Anatomy-school, where I saw it some years after.'

At the age of seventy-nine Bobart was forced by the Vice-Chancellor, Dr. Skippen, to resign the Chair of Botany. William Sherard writes: 'I was surprised to learn that he was compelled to resign; they ought to have allowed him to spend the short remainder of his days in the garden.' He died a few months after, and was buried in the church of St. Peter-in-the-East.

Dr. Abel Evans dedicated *Vertumnus*, a poetical epistle of thirty-three pages, to him in 1713. One verse of it is here subjoined:—

'Their bark, their flowers, or leaves,
Thy *Hortus Siccus* still receives:
In tomes, twice ten, that work immense
By thee compiled at vast expense.'

The poem, of which the author has a copy, is included in the *Select Collection of Poems*, vol. iii. p. 145, of 1780. Dr. Kreigh's Album in the British Museum contains the following autograph of Bobart: 'Virtus sua gloria. Think that day lost whose descending sun Views from thy hand no action done. Your success and happiness wished by Jacob

Bobart.' A letter from Bobart to Buddle, which is printed in full on p. 379 of the *Flora of Oxfordshire* (1886), together with forty-two of his autograph letters to Petiver and Sir Hans Sloane, are preserved in the British Museum.

In the Sloane Collection there is also a list of plants and of seeds saved at Oxford by Bobart in 1695-6: the number of the paper is 3343. A tract in the Library of the Botanic Garden at Oxford, entitled *Historiae Naturalis Sciagraphia*, Oxford, 1720, is attributed to Bobart. There is an oil-painting of him in the same Library. Petiver dedicated to him Plate XII of his *Gazophylacium Naturae et Artis*, published in 1702¹.

Linnaeus named the genus *Bobartia* after him; his name is perpetuated also in *Vicia Bobartii*, Forst., now *V. angustifolia*, L., var. *Bobartii*, and in *Scrophularia nodosa*, L., var. *Bobartii*, Pryor.

TILLEMANN BOBART, a younger brother of Jacob Bobart, the Professor, was also employed for a time in the Botanic Garden at Oxford. He found a mint on Shotover, in Oxfordshire, which has been referred to *Mentha rubra*, and *Poa nemoralis* about Oxford, a specimen of which, Petiver says, was sent him from Oxford, 'ab amico benevolo D. Tilleman Bobart.' He appears to have been employed in laying out the park and gardens at Blenheim as late as the year 1709. Seven letters relating to work done there are preserved in the British Museum, and one dated Feb. 1711-12, which contains an inquiry as to the method of preserving birds. In the *Museum Petiverianum* (1695), on p. 35, is a list of British Butterflies, and the following entry by James Petiver: 'A. 328 Papilio major caudatus ex nigro et luteo variegatus, The Royal William; the only one I have seen about London was caught by my ingenious friend, Mr. Tilleman Bobart, in the Royal Gardens at St. James.' Tilleman Bobart was also employed in laying out the gardens, &c. at Hampton Court.

SAMUEL DOODY, who contributed the list of plants from Bagshot Heath to the second edition of Ray's *Synopsis*, as has been already said, was an apothecary. He was born in Staffordshire in 1656, and was made Keeper of Chelsea Garden in 1692. Ray, in the second edition of his *Synopsis*, alludes to him in flattering terms, and Antoine de Jussieu speaks of him as 'inter Pharmacopoeios Londinenses sui temporis Coryphaeus.' He became a Fellow of the Royal Society in 1695.

¹ For further particulars respecting Jacob Bobart see the *Biographical Sketch* by H. T. Bobart, 1884; Nichols' *Illustrations*, i. 342, 357, 361; *Dictionary of National Biography*, v. 286; Pulteney, i. 312; Richardson's *Correspondence*, pp. 10, 152; Wood's *Antiquities*, 599; *Philosophical Transactions*, xiv (1683); Petiver's *Musei Rar. Nat.* (1695); Ray's *Philosophic Letters* (1718); *Universal Magazine of Knowledge and Pleasure*, xxxii (1763); Granger's *Biogr. Hist. Engl.* (1804); Evelyn's *Diary and Correspondence*, by W. Bray, 4to (1819); Aubrey's *Letters*, 8vo (1813).

Doody's herbarium is in the British Museum, and his interleaved copy of Ray's *Synopsis*, with numerous notes, is in the Library of the British Museum (969 f. 21). Pulteney says that 'among the Cryptogamic plants he made the most discoveries of any man in that age, and in the knowledge of them stood clearly unrivalled.' His manuscript notes on the Mosses are in the Sloane Collection, and are numbered 2315. Robert Brown named the genus *Doodia* after him, as Roxburgh's genus of the same name had been changed to *Uria*. Doody died in 1706. The plants recorded by him in Ray's *Synopsis*, ed. ii. 345, 1696, from Bagshot Heath, and which are probably still to be found there, both in Berkshire and in Surrey, are *Lycopodium clavatum*, *Rhynchospora alba* (already given for Berkshire by Johnson), *Drosera longifolia*, *Osmunda regalis*, *Hypericum elodes*, *Erica Tetralix*, the hoary form of *Calluna* (see Clusius), and *Scirpus caespitosus*.

More information about Samuel Doody will be found in Field and Semple's *Memoirs of the Botanic Garden at Chelsea*, London, 1873; in the *Flora of Middlesex*, p. 376; and in the *Dictionary of National Biography*, vol. xv. p. 236.

DU BOIS, C. CHARLES DU BOIS, or Dubois, a London merchant, who was born in 1656, had a Botanic garden at Mitcham in Surrey. He was Treasurer of the East India Company, and made a large collection of plants, many of which he procured from India. The British specimens were chiefly supplied by Mr. Stonestreet. The Du Bois collection, now at the Botanic Garden, Oxford, was formerly contained in bound volumes; unfortunately it has been rearranged, but is still kept separate from the General Herbarium of the University. It contains the following plants from Berkshire and Oxfordshire, none of which appear to have been gathered by Du Bois himself:—*Lycopodium inundatum* from Bagshot, collected by Mr. Stonestreet; *Polystichum angulare* by Mr. Bobart from Newbury, as before mentioned; a form of *Convolvulus arvensis* found by Mr. Stonestreet near Henley; a form of *Polypodium vulgare* from Windsor Castle, communicated by Dr. Manningham; Bobart's *Scrophularia nodosa* from Cumnor; *Vicia sylvatica* from near Oxford; *Malva sylvestris*, a form sent by Mr. Rand from Windsor; and *Galium erectum* from near Oxford by Mr. Buddle.

The Sherard herbarium contains a plant which appears to have been removed from the Du Bois collection, and is labelled in Mr. Stonestreet's handwriting 'Potamogeton millefolium seu foliis graminis ramosum, Raii Syn. 61. D. Thorp collegit in Thamesi prope Oxoniam.' Sibthorp labelled the plant *Potamogeton pectinatus*; it is however *P. interruptus*.

Du Bois died in 1740 and was buried at Mitcham. For further particulars concerning him see the *Dictionary of National Biography*, vol. xvi. p. 77. Brown commemorated him in the genus *Duboisia*.

The Reverend WILLIAM STONESTREET was educated at Cambridge, STONE- where he took his Master of Arts degree in 1681, and was Rector of STREET, W. St. Stephen, Walbrook, in 1689. A very large number of his plants are preserved in the Du Bois herbarium at Oxford, but few unfortunately have any locality affixed to them. Among these few are *Equisetum sylvaticum* from near Maidenhead in Buckinghamshire, *Myosotis collina* from Surrey, a form of *Convolvulus arvensis* from near Henley—from a spot therefore which might be either in Oxfordshire or Berkshire, *Lycopodium inundatum* from Bagshot Heath, and *Lolium temulentum* from near Windsor, but in Surrey.

WILLIAM SHERARD, whose name was originally Sherwood, was born SHERARD, at Bushby in Leicestershire in Feb. 1658-9. He was educated at W. Merchant Taylors' School, and in 1677 was elected into St. John's College, Oxford, where he took the degree of B.C.L. in 1683. It was then probably that he was elected Fellow of the College, as in the same year he obtained leave of absence to travel beyond the seas. He spent the years 1686, 1687, and 1688 in Paris, where he studied Botany under Tournefort. The *Schola Botanica* was published in 1689, and was almost certainly the work of Sherard. He returned to England in the same year, and obtained further leave of absence from his College. During the next three years he was Tutor to Sir Arthur Rawdon, and resided for that period in Ireland, where he made many interesting botanical discoveries. He writes from Moyra in County Down on June 6, 1691, to say that he 'was viewing a mountain about fifteen miles distant, which did not prove according to expectation. On my return home,' he proceeds, 'by a Lough side, in a very wet rotten bog, I met with Helleborine flore albo [*Cephalanthera ensifolia*], which, besides the difference of its growing from that on Stokenchurch hills [Oxfordshire], where I have found it plentifully, the narrowness and length of its leaves persuade me is a distinct kind.' *Subularia aquatica* was discovered by him in Lough Neagh, and also a plumose form of *Athyrium Filix-foemina*, *Carex dioica*, L., and *Chara polyacantha*, and almost certainly *Spergula pentandra*.

Sherard took the degree of Doctor of Civil Law on June 23, 1694, and obtained permission to travel for five years. Accordingly he made a continental tour, during which he appears to have acted as Tutor to Viscount Townshend¹. In Feb. 1695 he was engaged in preparing Hermann's papers for the press, and in 1697 the *Paradisus Batavus* was published for the benefit of the Leyden Professor. In June of the same year Wriothesley, eldest son of Lord William Russell, was created Baron Howland on the occasion of his marriage, when fourteen years old, to a rich heiress, the only daughter of John Howland, and after the ceremony the bridegroom travelled in

¹ See Pulteney's *Sketches*, vol. ii. p. 141.

company with Sherard into France and Italy. Taking the route through Holland they reached Rome in 1698, and proceeded from there to Naples and Venice. In the following year Sherard was again in Rome, and there, at Tournefort's suggestion, he contemplated the continuation of Bauhin's *Pinax*. In 1700 he became Tutor to Henry, second Duke of Beaufort, and held that appointment for two years; during this time he assisted Ray in the revision of the material for the third volume of the *Historia Plantarum*, to which he contributed more than a thousand plants: a part of his additions in his own handwriting is preserved in the Botanical Department of the British Museum. In March, 1701, he writes from Badminton that he has undertaken to adjust the names of the Mosses of Mr. Ray, those of Mr. Bobart in the third volume [of the *Historia*], and of Tournefort in his History of the Plants about Paris. After occupying the post of Commissioner for the Sick and Wounded in London in 1703, and for some portion at least of the next year¹, he was appointed Consul at Smyrna. Here he continued the task of compiling the *Pinax*, but found botanizing difficult, 'rogues swarming even up to the gates of Smirna.' We learn from a letter dated March 25, 1709, and given by Ballard (vol. xxvii. 6), that he visited the six other sister-churches of Asia Minor. Sherard writes that 'the greatest part of the inscriptions which Mr. Chishull designs to print were copied in a voyage I made with some of the factory three years past to visit the seven Churches of Asia. We made an excursion to Geira (Aphrodisias of the antients) where we copied near an hundred. I have since met with some very usefull ones at old Teium, a day's journey hence: as soon as our convoy is departed, I design (if I can possibly make a company) to go along the shoar as far as Halicarnassus, and return by Geira (to correct those already copied), Mylassus (Mylasa), Tralles, &c., so that both what I have in my house here (which I design to present to our University), and what I may expect to meet in other parts, I believe will fill another volume in folio.' He hoped to find many new plants in the journey to Halicarnassus, but was disappointed, and was so discouraged that he almost gave up the pursuit of botany. He occupied himself for a time with antiquarian subjects; but in 1714, after upwards of six hundred medals had been stolen from his house, he returned with renewed zeal to his old studies. He left Smyrna about the end of 1716 and spent the following year in travelling through Europe, reaching England towards its close. James Sherard writes to Richardson in August, 1716, that he expects his brother in the ensuing winter, or spring at farthest, in order to finish

¹ In the *Richardson Correspondence*, at p. 81, there is a letter from Sherard dated March, 1704, and written from the Commissioner's Office in London; he therefore did not leave England for Smyrna so early as 1703.

the *Pinax*. But in April, 1717, he writes again: 'I am disappointed of my brother's company this summer; he happened to come in a ship that had the plague in it, and was forced from Sicily where he intended to have come on shore, and lay afterwards a long quarantine at Leghorn, which has broke his first measures. So he has resolved to pass the summer abroad.' Sherard was elected a Fellow of the Royal Society in 1718, and took up his residence in Barking Alley in London.

In Feb. 1718, Sherard writes to Dr. Richardson saying that his brother James Sherard will be of use to him in the preparation of the *Pinax*, and on Oct. 7, 1718, that he had left Mr. Bobart in a low state of health, and that he feared he would not get over the winter. On Feb. 28, 1718-9, he tells Dr. Richardson: 'I had a letter yesterday from Dr. Dillenius, to whom I wrote last month. He published last year a catalogue of the plants growing about Giessen. He was recommended to me as a person very curious in mushrooms and mosses.' On April 12, 1720, he says that Dillenius is sending him mosses and plants, and on March 28, 1721, that he has resolved to send for Dillenius, but cannot expect him till the latter end of July. In September he sent word to Richardson that he has brought over Dr. Dillenius, 'who has with him most, if not all, his Fungi painted, and all his Lichenes, Lichenastra, and Muscos neatly designed.' On May 12, 1722, he tells Richardson: 'Dr. Dillenius will witness we have worked ten hours a day these two months past,' and on Oct. 13 of the same year: 'Dillenius works after candle-light on the *Synopsis*,' and on Dec. 26, 1723: 'I know nothing further Dr. Dillenius has to do to the *Synopsis* but the getting graved a few more plates, which may be done while it is printing. But our people cannot agree about an editor; they are not willing a foreigner should put his name to it, and none of them will, though it is ready done to their hands.'

Prior to these last dates, namely in 1721, Sherard had been again on the Continent and had visited the eminent French botanist Vaillant, whom he found in a pitiable state of distress. Sherard, with his customary kindness to fellow-botanists, induced Boerhaave to purchase Vaillant's manuscripts, thus bringing comfort to the dying man, who passed quietly away in the following year with a mind completely set at rest. Continuing his journey Sherard, while creeping up a mountain-side in search of plants, was mistaken by a peasant for a wolf, and narrowly escaped being shot. In 1723 he spent some time at Leyden with Boerhaave determining the plants for the *Pinax* and assisting in the preparation of Vaillant's *Botanicon Parisiense*. In 1724 appeared the third edition of Ray's *Synopsis* by Dillenius, in the preparation of which Sherard had greatly assisted. In August, 1726, Sherard gave £500 towards enlarging the Conservatory at the Botanic Garden at Oxford, together with a large number of curious

plants and a collection of Botanical works for the Library. Two years later he died at Eltham. James Sherard, writing to Dr. Richardson on Aug. 20, 1728, says: 'We buried him last Monday at Eltham, he desiring to ly where I thought to be buried my self. . . . He has left his books and plants, &c., and £3,000 for the maintenance of a Botany Professor at Oxford. . . . He has nominated Dr. Dillenius to be the first Professor for life.' No monument marks his grave, the actual position of which is not known; nor have we seen any engraved likeness of him. An oil-painting in the Library of the Botanic Garden at Oxford is presumed to be a portrait of him. The books mentioned above, and now known as the Sherardian Library, are rather more than six hundred in number; many of them are rare, and a few contain notes by Sherard. Vaillant gave his name to a genus of *Verbenaceae*, which Linnaeus however reunited with *Verbena*. A shrub, now known as *Galena africana*, was named *Sherardia* by Pontederá, but the Dillenian genus *Sherardia* was adopted by Linnaeus and is still retained. Sherard on one occasion visited Jersey and there discovered several plants, among them *Bartsia viscosa*, *Bromus madri-tensis* var., and *Gnaphalium luteo-album*.

Sherard's herbarium, preserved at Oxford, consists of about twelve thousand specimens, for the most part without localities. It is interesting as containing many plants from Vaillant, Jussieu, Micheli, Boerhaave, Linnaeus, Buddle, and Richardson; a large number of specimens from America collected by Uvedale, Catesby, Vernon, Bartram, Bannister, Soldau, Tilden, Houstoun, from Africa by Commelin, and from Russia by Ammann. The MS. of the *Pinax*, which has never been published, is also preserved in the Library of the Botanic Garden at Oxford.

The plants from Berkshire, which Sherard recorded in Ray's *Synopsis* of 1690, are '*Salix caprea acuto longoque folio*, found frequently about Oxford,' which is *S. Smithiana*, Willd. '*Salix minima fragilis folio longissimo utrinque viridi non serrato*; in the osier-holts between Maidenhead and Windsor,' which is referred to *S. rubra*. '*Caryophyllus holosteus arvensis medius*, near Oxford,' which is *Stellaria palustris*. In the edition of 1696 (p. 191) he records '*Orobis sylvaticus nostras*. In the upper part of Merley Wood near Oxford.' By this name is intended our *Vicia Orobis*, but Sherard probably mistook for it *Vicia sylvatica*, which occurs in that wood. No other botanist has found *V. Orobis* in the locality, and Dillenius' specimen from the same wood is *V. sylvatica*. This throws doubt on Sherard's record of *V. Orobis* from Ireland.

On a specimen of *Bromus erectus* in his herbarium Sherard has written: 'This was first found by me and given to Mr. Bobart.' A memoir of Sherard by Mr. Daydon Jackson will be found in the *Journal of Botany* for May, 1874, at p. 129.

The Rev. ADAM BUDDLE was born in Lincolnshire, at Deeping BUDDLE. St. James. He was educated at St. Catherine's Hall, in the University of Cambridge, where he took the degree of Bachelor of Arts in 1681, and of Master of Arts in 1685. His collection of plants is in the British Museum, but many of his specimens are to be found in the herbaria of Sherard and Du Bois at Oxford. The only plant which connects him with Berkshire is *Galium erectum*, in the Du Bois herbarium. He died in 1715, and was buried in St. Andrew's, Holborn. His eminence as a botanist is indicated by the name *Buddleia*, given by Linnaeus to a genus of *Loganiaceae*. The letter No. 40 in the Richardson *Correspondence* was written by Buddle. For further particulars of his life and work see the *Dictionary of National Biography*, vol. vii. p. 222.

JAMES SHERARD, younger brother of William Sherard, was born in SHERARD, 1666. He practised as a Physician and Apothecary in London, and JAMES. made a large fortune. He cultivated at his country-house at Eltham, in Kent, so large a number of plants that his garden was looked upon as one of the richest in England. He collected a considerable number of British plants, many of which are preserved in the Du Bois herbarium at Oxford, others in the herbaria of Sherard and Dillenius at the same place. He died on February 12, 1737, and was buried in the church of Evington, near Leicester, where there is a monument to his memory. It is recorded in the *Synopsis* that he gathered *Linaria repens* at Henley, in company with Mr. Dandridge of Stoke Newington, a friend of Ray's, and interested in entomology also. Notices of James Sherard will be found in Pulteney, *Sketches*, vol. ii. pp. 150-2, and at p. 123 of the Richardson *Correspondence*; and of Dandridge in Nichols' *Literary Illustrations*, i. 357 and iii. 782, and in the Richardson *Correspondence*, p. 204.

JOHN JAMES DILLENIIUS was born at Darmstadt in 1687, and studied DILLENIIUS at the University of Giessen, where he took the degree of Doctor of Medicine. In 1719 he published his *Catalogus Plantarum sponte circa Gissam nascentium*, which established his reputation as a botanist. The catalogue was arranged in the order of the times at which the plants appeared in flower. In the circuit of about a German mile and a half he found 980 species of Phanerogams, 200 species of Mosses, and 160 Fungi. In an article in Rees' *Cyclopaedia* Sir James Smith expresses the opinion that 'this work contains accurate descriptions of many plants before not well determined, with figures drawn and engraved by himself of the parts of fructification, he having always been laudably anxious to establish the genera of plants on solid foundations.' The extracts from the Sherardian correspondence already given have shown how Dillenius was induced by Sherard to come to England, and how closely he applied himself to his labours on botanical subjects, his first object being the completion of the *Pinax*, and next to that the

preparation of the third edition of Ray's *Synopsis*. In this publication Dillenius has distinguished his own additions from the original text by the use of a different type; and while it cannot be denied that a few species were introduced on insufficient grounds, and the synonymy left something to be desired, yet the addition of so many new species of Cryptogams, and the correction of some of Ray's errors, render the work a very commendable production, especially when the editor's short residence in England is taken into account. The book was published anonymously in 1724, Sherard, Edward Lhwyd, Keeper of the Ashmolean, Manningham, and others giving their assistance. About 40 Fungi, 40 Algae, more than 150 Musci, and about 200 Phanerogams and Ferns were added, the whole number of described species amounting to 2,000, which, however, judged by the Linnaean standard, would not exceed 1,800. The new references to the flora of Berkshire are few, and Dillenius was himself probably at that time unacquainted with it. The following species appear to have been published for the first time:—*Lycopodium imundatum*, L., communicated by Mr. Stonestreet; *Polypodium vulgare* by the Rev. Mr. Manningham; *Linaria repens*, found by Mr. Dandridge and James Sherard near Henley, in a spot which was possibly on the Buckinghamshire side of the river, for the plant occurs near Henley in both counties; *Carex vesicaria*, 'circa Oxoniam' from J. Bobart, is probably only from Oxfordshire localities.

In 1726 Dillenius, accompanied by Littleton Brown and Wm. Brewer, spent two months in making a tour through Wales, visiting also the Severn district, the Mendips, and Cheddar. They gathered many interesting plants, which are still to be seen at the Botanic Garden in Oxford, and a letter giving a detailed account of the journey, the original of which is also preserved at Oxford, will be found on p. 252 of the Richardson *Correspondence* and in my *Flora of Oxfordshire*. On August 13, 1728, Dillenius wrote to Richardson: 'When the Consul [Sherard] lay at Eltham I was obliged to be often there, and since he came to town I stayed with him and attended him continually to the last moment; he died last Saturday between one and two in the morning of a marasmus. . . . He hath been so kind as to nominate me his first Professor for life-time, and to enjoy the yearly revenue from now in order to take care of the Collection and to carry on and finish his *Pinax*.' These occupations were interrupted by James Sherard, who induced Dillenius to write a book giving descriptions of the plants cultivated in the garden at Eltham. The work appeared in 1732 in two volumes folio, entitled *Hortus Elthamensis*, and accompanied with 324 plates drawn and engraved by Dillenius' own hand. In these plates 417 species are delineated with great fidelity, among them a very large portion of the then known species of Mesembry-

anthemum. The letterpress abounds in ample descriptions, elaborate criticisms, and intelligent remarks. Several new genera are established, and many rare or obscure species elucidated. The copy in the Library of the Botanic Garden at Oxford was coloured by Dillenius himself; it contains a reference to the discovery of *Linaria repens* at Henley. A key to the modern names of the plants in the work was published in 1856 at Dantzic by E. F. Klinsmann. It appears from the Richardson *Correspondence* that James Sherard treated Dillenius in a very shabby and ungenerous manner. Dillenius was a very considerable loser in a pecuniary sense by the publication of the work, but he grudged the time spent upon it more than the money which he lost by it.

Dillenius took up his residence in Oxford in 1734, and devoted himself to the task of completing the *Pinax*. He received the degree of Doctor of Physic from the University in 1735. In 1736 he writes from Oxford: 'A new botanist is arose in the north, the founder of a new method "a staminibus et pistillis," whose name is Linnaeus; he has printed *Fundamenta Botanica*, *Bibliotheca Britannica*, *Systema Naturae*, and is now printing in Holland his *Characteres* and *Flora Lapponica*. He is a Swede and hath travelled over Lapponia, hath a thorough insight and knowledge of botany; but I am afraid his method won't hold. He came hither and stayed here about eight days, but is now returned to Leyden.' This was the well-known visit of Linnaeus to England, which the generosity of his patron Clifort enabled him to make. He justly considered Dillenius to be one of the first botanists in Europe. One version of the meeting of the two men in the Physic Garden at Oxford is to the effect that the learned Dillenius was at first haughty and distant, conceiving the *Genera* of Linnaeus to be written against him; but that he afterwards detained him for a month, without leaving Linnaeus an hour to himself the whole day long, and at last took leave of him, with tears in his eyes, after giving him the choice of living with him till his death, as the salary, he thought, was sufficient for them both¹. Another version relates that Linnaeus, meeting the Oxford Professor in company with Dr. Shaw, the Barbary traveller, whose plants are at Oxford, apologized for his inability to talk in English, which threw Dillenius off his guard, so that he remarked carelessly to Dr. Shaw, 'This is the young man who would confound the whole of botany'; but Linnaeus gathered the meaning of the speech by tracing the word 'confound' to its Latin source, and soon took an opportunity of retaliating by slightly alluding to it while he was demonstrating in the garden some of the new genera to which Dillenius had particularly objected. He quickly constrained the Professor to form a high opinion of his ability, though he could

¹ See Linnaeus' *Diary*, p. 517.

not succeed in making him a convert. Yet a third version of the story was given by Dr. Williams, a later Professor of Botany at Oxford, to Professor Schultes. Dr. Williams says that Dillenius had used 'confusion' when speaking of Linnaeus, but that shortly afterwards Sherard [*sic*, ? Shaw] and Dillenius stopped by a wall overgrown with *Linaria Cymbalaria*, a plant upon which they were desirous of having the opinion of Linnaeus, as much doubt had existed respecting it. Linnaeus removed the difficulty with his natural perspicuity; a second and third plant, of which they felt uncertain, were also cleared up with perfect ease by Linnaeus. Dillenius was surprised, and his companion remarked that he could see no confusion in Linnaeus. Then grew up a mutual liking, and it was not till Linnaeus was about leaving Oxford that he remarked to Dillenius that he hoped he had brought no confusion there, whereupon the Professor took the opportunity of apologizing for the ungracious word. Whatever the true account of the matter may be, the meeting of the two botanists led to a friendship which was kept up in correspondence till the death of Dillenius. Many of the specimens which Linnaeus sent him are still preserved at Oxford, but his valued letters perished, it is to be feared, with a large amount of most interesting correspondence, after the death of the younger Sibthorp¹. An interesting letter of Dillenius to Linnaeus of May 16, 1737, published on pp. 85-94 of the *Selection of the Correspondence of Linnaeus*, contains some valuable criticisms on the *Genera Plantarum*. In another letter written in August of the same year Dillenius praises the *Flora Lapponica* highly, though he disliked the dedication of it to himself, but censures the *Critica Botanica* rather severely. As explaining his dislike to personal commendation the following sentence may be quoted: 'I could wish you to examine carefully the *Dillenia* of your *Nova Genera*, 455, and compare it with the *Clusia* of Plumier, 862. If they prove the same, you will doubtless leave to this genus the name of an author superior to me in merit, as well as by a prior right entitled to the honour, in which measure I shall gladly concur.' A letter dated Nov. 28, 1737, shows that Linnaeus had been a little hurt by the criticism, for Dillenius hastens to explain that 'so far from being angry with you, as you seem by your last to apprehend, I, on the contrary, highly esteem and love you. . . . If you write to me in future, as I much wish you would, pray leave out all formalities and long-winded titles, which are odious to my taste.'

In 1741 Dillenius published his *Historia Muscorum*, a quarto volume of 576 pages, containing the synonyms, history, and descriptions of above 600 mosses, and eighty-five plates etched by himself. Only 250 copies were issued at a guinea each. Sir James Edward Smith

¹ See the *Flora of Oxfordshire*, p. 390.

gave it very high praise, but says that he has seen it standing fairly lettered and untouched on the shelves of collectors as a *History of the Muscovites*! Not only the true Mosses, but Hepaticae, Lycopods, and some crustaceous Lichens are enumerated in this volume. The type specimens are preserved at the Botanic Garden at Oxford. Hooker and Arnott gave their determinations of them in Hooker's *Journal of Botany*, vol. i. (1834). They have been examined more recently by Lindberg. An edition consisting of an impression of the plates with the names only was issued in 1768. On Oct. 15, 1741, Dillenius wrote to Linnaeus that he had at length got rid of the burthen of his *Historia Muscorum*, that all the plates, in number eighty-five, were printed, as well as sixty-one sheets of letterpress, twelve or fourteen more plates remaining to be printed, and that these will be finished before he can receive an answer to his letter.

Dillenius' herbarium of flowering plants and higher Cryptogams, which he prepared to illustrate his edition of the *Synopsis*, is among the collections at Oxford. It includes many very interesting plants, such as *Potamogeton nitens*, *Hieracium sparsifolium*, and *H. argenteum* from Wales, *Tolypella mucronata* from Middlesex. The Berkshire plants are few in number, and principally from the neighbourhood of Oxford; they are as follows:—*Galium hercynicum*, Weig., *G. uliginosum*, L., *Eriophorum latifolium*, *Equisetum sylvaticum*, *E. palustre* (1744), *Parietaria* (1724), *Vicia sylvatica*, *Hypericum acutum*, *Viola palustris*, *Ophrys apifera*, *Habenaria conopsea*, and *Eleocharis palustris*.

Dillenius died in 1747 from an apoplectic fit at the age of sixty-three. There is a three-quarter length portrait of him in the Bodleian Library, given by George Seidel, M.A., in 1750, from which a print was published in the *Annals of Botany*, and there is a likeness of him in oil in the Library of the Botanic Garden at Oxford. He left to the Bodleian Library a coloured copy of the *Hortus Elthamensis*, and another copy to Dr. Lewis, his physician, which is now in the British Museum. He left several incomplete manuscripts, among them Ray's *Medicinal Plants*.

His drawings, dried plants, books, and manuscripts were purchased by Professor Sibthorp from his executor, Dr. Seidel. Many of his letters are in print, as will have been seen, in the Richardson and Linnaean *Correspondence*; 'they evince,' says Dawson Turner, 'great plainness of character, and he lived much esteemed by his contemporaries.' Linnaeus wrote: 'In Anglia nullus est qui genera curet vel intelligat praeterquam Dillenius,' and he founded the beautiful genus *Dillenia* in honour of him, as he states in his *Critica Botanica*; 'it is,' he says, 'of all plants the most distinguished for the beauty of its flower and fruit, like Dillenius among botanists'.¹ Dillenius was buried in the churchyard of St. Peter in the East in

¹ See also Pulteney's *Sketches*, ii. pp. 153-184.

Oxford. There is a tablet to his memory in the church near the south entrance with the following inscription :—

H. S. E.

Johannes Jacobus Dillenius M.D. e civitate Darmstadt
Oriundus, natu igitur Germanus, studio et amore Anglus,
Eruditione demum orbis literarii civis. Professor
Botanices Sherardinus ab ipso Sherardo nominatus
Et in arte sua longe omnium princeps. Quanto et quam
felici labore Naturam penitus investigaverit, quam
artifici etiam manu admiranda ejus depingere
potuerit, quam colores leviter variare, quam facili
ductu aera incidere Testantur opera ejus immortalia.
Nemo interea aut melius vixit aut flebilior occidit,
Die scilicet Aprilis secundo, anno { Domini MDCCLVII
aetatis LXIII.

MANNING-
HAM.

The Reverend THOMAS MANNINGHAM, D.D., of Slinfold, Sussex, and Prebendary of Windsor, was a correspondent of Sherard and Dillenius. Sherard called him 'a really curious and diligent botanist,' and Dillenius compliments him in his preface to the *Synops.s*. He was buried at Slinfold in 1750. His addition to the flora of Berkshire was the Polypody from the walls of Windsor Castle.

RAND.

ISAAC RAND was, like Doody, an apothecary, and for many years a very zealous cultivator of botanical science. In 1724 he was appointed Keeper of the Chelsea Gardens, and in 1730 published the *Index Plantarum officinalium Horti Chelseiani*, an octavo volume containing 518 plants connected with Materia Medica. Nine years later he issued his *Horti medici Chelseiani Index compendarius*. He was a Fellow of the Royal Society. Linnaeus named the Rubiaceous genus *Randia* after him, having made his acquaintance when he visited the Chelsea Gardens. Rand died in 1743. His only addition to the flora of Berkshire was the form of *Malva sylvestris* from Windsor, which was noticed above.

BLACK-
STONE.

JOHN BLACKSTONE was an apothecary of Fleet Street in London, who published in 1737 a work entitled *Fasciculus Plantarum circa Harefield sponte nascentium*, and in 1746 another which he named *Specimen Botanicum quo Plantarum plurimum rariorum Angliae indigenarum loci natales illustrantur*, a duodecimo volume of 106 pages. He visited Oxfordshire about the year 1736, and made many interesting discoveries in that county, as his MS. in vol. 317 of the Sloane Collection shows. His herbarium is now in the British Natural History Museum. There are two letters of his in the Richardson *Correspondence*, one giving an account of the first discovery as a British plant of *Dentaria bulbifera*. In the Hope Collection there is a print with the figures of three botanists, one of whom is William Curtis, author of the *Flora Londinensis*, and another John Blackstone, of whom it is said to be a good likeness; it is the only known portrait of him extant. He died in 1753. Hudson,

in honour of him, gave the name *Blackstonia* to Renealm's genus *Chlora*.

The *Specimen Botanicum* enumerates over 360 species of plants with localities in various counties, but the only additions to the flora of Berkshire are '*Hipposelinum Theophrasti vel Smyrnum Dioscoridis officinale*, C. B. Pinax 154; about Windsor Castle'; '*Lathyrus Viciae-formis, seu Vicia Lathyroides nostras* (Raii Syn. ed. iii. p. 320); in a wood near Abingdon, Mr. Hawkins'; and '*Nymphaea alba major vulgaris*, Park. 1251; on Windsor Lake.' The first plant is *Smyrnum Plusatrum*, L., and has not been seen recently in the locality given. The second is referred to *Lathyrus palustris*, L., but no confirmatory evidence exists, since the identification and habitat of Dickson's plants so named and localized are doubtful. The third plant is *Castalia speciosa* (*Nymphaea alba*), but the Windsor Lake may possibly refer to a piece of water near Uxbridge in Middlesex.

The Reverend WILLIAM SHEFFIELD¹, born at Henley in Warwickshire, SHEF-
was a member of Worcester College in the University of Oxford, where FIELD.
he graduated B.A. in 1754, M.A. in 1757, and D.D. in 1778. He was Keeper of the Ashmolean Museum from 1772 to 1795, becoming Provost of his College in 1777. He was a friend of Sir Joseph Banks and the companion of his walks about Oxford. He died on June 23, 1795.

There is a manuscript note by Dr. Sheffield in a copy of the *Flora Anglica* in the Library of the Botanic Garden at Oxford, in which he records the finding of *Helleborus viridis*. A manuscript volume from the library of the late Mr. William Baxter, entitled '*Plantae Oxonienses nondum detectae*,' contains some notes on the local flora, the work presumably of Professor Sibthorp. In this volume Dr. Sheffield is said to have found *Typha minor*? [*T. angustifolia*] at Cowley gravel-pits, and *Thesium linophyllum* at Stanton St. John, both places being in Oxfordshire. In the second edition of Hudson's *Flora Anglica* it is stated that Dr. Sheffield found *Carex strigosa* near Oxford. The locality was Wytham in Berkshire, but the plant has not been found there since. Forster speaks of Dr. Sheffield as '*Botanicus Oxoniensis imprimis peritus*'; but this is no great praise in the time of the Professorship of Humphrey Sibthorp, when, as Sir James Edward Smith says, every scientific object was all wed to sleep during a period of forty years, in which not one successful lecture was given. Dr. Peter Acharius, writing to Linnaeus in 1755, says: 'I saw nothing of Professor [Humphrey] Sibthorp, he being absent from Oxford, nor of the manuscripts of Dillenius or Sherard, of which I am sorry to hear that the Professor takes little care.'

WILLIAM HUDSON, born at the White Lion Inn, Kendal, in 1730, was, HUDSON.
like many of the preceding botanists, an apothecary; he served his

¹ See Foster, *Alumni Oxonienses*, iv. 1284 (1715-1886).

apprenticeship in Pantou Street, Haymarket, and afterwards practised in London. Pulteney (*Sketches*, ii. 351) says of him: 'To an extensive knowledge of English plants, acquired by attention to nature, he had by his residence in the British Museum all the auxiliary resources that could favour his design.' He made the acquaintance of Mr. Stillingfleet, who early directed his attention to the writings of Linnaeus, and gave his mind that correct and scientific turn which caused him to take the lead as a classical British botanist. In 1762 appeared his *Flora Anglica* in a single octavo volume—a work which marks an epoch in English Botany, for in it the binominal system of nomenclature introduced by Linnaeus in the *Species Plantarum* was adopted for the first time in Britain. He also followed Linnaeus' artificial system of arrangement, though he took Ray's *Synopsis* for the groundwork of his book, adding such new species and new habitats as he or his friends were able to supply. The synonyms of the most valuable authors since the time of Ray and Dillenius were given, together with descriptions of new or rare plants. A few new genera also were established. The 'elegant' preface was written by Benjamin Stillingfleet. This work was at once adopted as the manual of British Botany, the author having been made a Fellow of the Royal Society in the previous year. He was a prominent member of the Apothecaries' Company, was Keeper and Demonstrator of its Garden at Chelsea from 1765 to 1771, and bequeathed to it his herbarium. In 1862 the Company presented the whole of its dried specimens to the British Museum. Among these were not only Hudson's plants, but also those of Ray, Dale, and Rand.

No plant was added to the flora of Berkshire in the first edition of the *Flora Anglica*, which soon became so scarce that a copy was sold, as we learn from Sir James Smith, for nearly twenty times its original price. A second edition therefore appeared in 1778 in two octavo volumes with many additions and various alterations. On the whole this new book was worthy of its author. It records *Caucalis daucoides* near Reading, but the plant has not been observed there in recent years. Also *Bromus muralis* (*Bromus madritensis*) round Oxford; this plant, if it ever occurred round Oxford, which is doubtful, was gathered in Oxfordshire probably, not in Berkshire; *Monotropa Hypopitys*, 'frequent in Berkshire'; and *Carex strigosa*, 'near Oxford. D. Sheffield.' Dr. Goodenough accepted the record, and Sibthorp gives an Oxfordshire locality for the plant, but I have failed to find it.

Hudson was a man of superior character, and bore with philosophic tranquillity the irreparable loss which befell him in the winter of 1783, when his house and the greater part of his literary treasures, among these the material for a *Fauna Britannica*, were destroyed by fire

through the cupidity, it is supposed, of a servant, who knew that his master had recently received a considerable sum of money, of which no trace could be found among the ruins. The property being uninsured at the time through an oversight, Hudson's loss was very serious. He removed to a smaller house and recommenced his favourite studies, but his health had been for some time seriously impaired, and he died eventually on March 23, 1793. He was buried in the Church of St. James, Piccadilly. Linnaeus named the genus *Hudsonia* after him.

The Reverend JOHN LIGHTFOOT, born at Newent, in Gloucestershire, LIGHT-
in 1735, became a member of Pembroke College, in the University FOOT.
of Oxford, in 1753. He took his M.A. degree in 1765, and having entered Holy Orders became Chaplain to the Dowager Duchess of Portland. He was Rector of Malden in Hampshire in 1765, of Gotham in Nottinghamshire in 1777, and subsequently of Cowley in Middlesex. In 1772 he travelled through Scotland in company with Pennant, and in 1777, aided by Pennant's generous kindness, he published his *Flora Scotica* in two thick octavo volumes, with thirty plates of botanical subjects. Several species are recorded in this work for the first time as native to Scotland, and some of Lightfoot's species are still retained. Lightfoot came to Oxford subsequently to consult the Dillenian herbarium with John Sibthorp, and then made some excursions in the neighbourhood, adding several new plants to the local flora. He appears, curiously enough, to have been the first discoverer of the Fritillary about Oxford. In the Library of the Oxford Botanic Garden is a copy of Hudson's *Flora Anglica*, and one of Ray's *Synopsis*, with manuscript notes by Lightfoot, and these afford some Berkshire records; *Senecio campestris*, *Campanula Rapunculus*, *Centunculus minimus* (cf. How's *Phytologia*), *Lathraea Squamaria* (1780), *Diploaxis tenuifolia*, *Gagea fascicularis*, *Schoenus nigricans* (1780), *Geum rivale*, and probably *Carex canescens* are mentioned.

Lightfoot became a Fellow of the Royal Society, and was one of the founders of the Linnean Society. He now took up his residence at Uxbridge, where his daughter lived (two letters, dated 1785, Uxbridge, from Lightfoot to Smith, are contained in the Smith Correspondence); but disappointment, it is said, at not obtaining another living from Lord Chancellor Thurlow, preyed upon his spirits, and he died suddenly in the spring of 1788 at the early age of fifty-three. His herbarium, containing many plants collected by himself in his rambles and a large number collected by Sir Joseph Banks during his foreign journeys, and being therefore of considerable interest, was purchased after his death by George III for 100 guineas as a present to the Queen, and deposited at Frogmore. The specimens after a time became infected with insects, and Sir J. E. Smith was requested to examine them.

Dr. Goodenough was permitted to consult the herbarium while preparing a paper on the Carices; this paper was published in the second volume of the Linnean Society's *Transactions*, 1794.

L'Héritier gave the name *Lightfootia* to a genus of Campanulaceae in honour of Lightfoot, and Swartz the same name to a genus of Filiceae, which is now *Prockia*, Willd. In Sibthorp's manuscript 'Plantae Oxonienses nondum detectae' Lightfoot is said to have found *Orchis militaris* near Streatley, Berkshire, and *Pyrola rotundifolia* at Stokenchurch and Nettlebed, but this plant was probably *P. minor*.

BANKS.

JOSEPH BANKS was born on February 13, 1743, in Argyle Street, London; he was the only son of William Banks of Revesly Abbey in Lincolnshire. He was sent to Harrow when he was nine years old, and was removed to Eton when thirteen. He is said to have been well-disposed, but so fond of play as to be the despair of his tutors, who could not induce him to fix his attention on his studies. However, one fine summer evening when he and some companions had been bathing in the Thames, he stayed so long in the water that the rest went away without him, and he returned to the school alone through a lane whose sides were clothed with flowers. His interest was excited by the beauty of the flowers, and he determined to know something about them. His first tutor in Natural History was an old woman, who was employed by the druggists of Eton and Windsor to gather herbs; her remuneration was to be sixpence for every new plant that she taught him to recognize and name. In the next vacation he found in his mother's dressing-room a copy of Gerard's *Herball*, the plates of which, appended to the descriptions, assisted him in the identification of the species. He left Eton at the age of eighteen, and entered as a Gentleman-Commoner at Christ Church, Oxford, in 1760. Finding that no lectures in Botany were given by the Professor (Humphrey Sibthorp), he obtained permission to procure a teacher to be paid by the students. He went, therefore, to Cambridge by mail-coach, and brought back one Israel Lyons, who afterwards published a small work on the Flora of Cambridge. In 1761, on the death of his father, he succeeded to a handsome fortune; and left Oxford in 1763 after receiving an honorary degree. In 1766 he was elected Fellow of the Royal Society; and through the influence of Lord Sandwich, First Lord of the Admiralty, was permitted to accompany Captain Cook in his famous expedition in the *Endeavour*, taking with him Dr. Solander, the favourite pupil of Linnaeus. In 1771 he received the degree of D.C.L. from the University of Oxford, and in 1772 visited Iceland with Solander, and ascended to the top of Hecla. In 1778 he was made President of the Royal Society. In 1779 he married Dorothea, daughter of William Weston Hugessen, and in the same year was created a Baronet. In 1795 he was gazetted K.C.B., in 1797 was

sworn in as a member of the Privy Council, and in 1802 was made a member of the National Institute of France. He died at Isleworth on June 19, 1820, and was buried at his own request in an unostentatious manner in the parish church. He left his herbarium to Robert Brown for life, and after his death to the British Museum, where it is now preserved along with his MSS. He discovered a considerable number of plants during his voyage with Captain Cook, among them a Proteaceous genus, to which the younger Linnaeus gave the name of *Banksia* in his honour. Bruce, the Abyssinian traveller, also named after him a monotypic genus of Rosaceae, which yields the celebrated vermifuge Couso or Kouso; on the plate depicting the tree Bruce wrote '*Banksia abyssinica*' (see the *Travels*, vol. v. app. pp. 73-76), but in the letterpress the word is '*Banksia*,' and for this reason the name *Hagenia abyssinica* is the one now adopted. It was also in honour of Sir Joseph Banks that Robert Brown gave the name *Josephia* to a new genus. Sir Joseph had become possessor by purchase of Clifford's herbarium, composed to a great extent of Linnaeus' own plants, and now in the British Museum, where too is the marble statue by Chantrey. A portrait in oils by T. Phillips, R.A., and a bust by Chantrey, are in the rooms of the Linnean Society; the bust was subscribed for by Fellows of the Society, and placed in the meeting-room on May 24, 1822. There is another portrait in oils at Kew, and many prints of him in the Hope Collection at Oxford. Several letters of Sir Joseph Banks are to be found in the *Selection of the Correspondence of Linnaeus*, vol. ii. 574-580. In one of these, addressed to Sir James Smith, he says: 'I fear you will differ from me in opinion, when I fancy Jussieu's natural orders to be superior to those of Linnaeus. . . I well remember the publication of Hudson, which was the first effort at well-directed science, and the eagerness with which I adopted its use.' Cuvier pronounced an unstinted eulogium on him before the Académie Royale des Sciences, but Sir Joseph appears in it rather as the munificent patron of science than as an actual worker or discoverer.

In the Herbarium in the British Museum there are a considerable number of specimens collected by Sir Joseph Banks in Berkshire; among them are:—*Ranunculus peltatus*, *Sisymbrium Alliaria*, *Bursa pastoris*, *Millegrana*, *Lathyrus sylvestris*, *Sison Amomum*, *Angelica sylvestris*, *Hippuris vulgaris*, *Callitriche intermedia* named *C. autumnalis*, *Ulex minor* named *nanus*, *Doronicum plantagineum*, *Veronica Anagallis*, *Daphne Laureola* (1760), *Humulus Lupulus* (1773), *Polygonum Hydropiper* (1773), *P. minus*, *P. Persicaria*, *P. lapathifolium*, *P. maculatum*, *Atriplex patula* (1774) (see Plot), *Scirpus lacustris*, *Juncoides campestre*, *Juncus effusus*, *J. conglomeratus*, *J. bufonius*, *Carex remota*, *Panicularia fluitans*, *Bromus giganteus*, *Brachypodium gracile*, *Phleum pratense*, and *Bromus ramosus*, the latter already on record. It is

said that Banks was the first to discover *Senecio squalidus* at Oxford, but I have obtained no evidence confirmatory of this statement. A copy of Hudson's *Flora Anglica* with Banks' MS. notes is preserved in the British Museum Library, press-mark 448. E. 21, in which several localities for plants are given in Berkshire and Oxfordshire. *Pedicularis palustris*, *Vinca minor*, and *Oxalis* are additions to the flora of the former county¹.

WITHER-
ING.

WILLIAM WITHERING was born at Wellington, in Shropshire, in 1741, where his father was engaged in medical practice; the son adopted the same profession, and obtained the degree of Doctor of Medicine, at Edinburgh, in 1766. He practised first of all at Stafford; but afterwards Withering removed to Birmingham and there became in a few years a leading physician.

In 1776 he published in two volumes his *Systematic Arrangement of British Plants*, a work which became a text-book for British botanists. No additions are made in it to the Berkshire flora. A second edition was published in three volumes in 1787, edited by Dr. Stokes. In this edition *Geranium pyrenaicum* is added to the Berkshire list on the authority of Mr. Woodward. A third edition of the *Arrangement*, in four volumes, was published by Dr. Withering in 1796; in this edition several Berkshire localities are given, but none of them are new records. Withering died at Birmingham in 1799. L'Héritier dedicated the genus *Witheringia* to his memory.

STOKES.

The Dr. STOKES mentioned above was born at Chesterfield in 1755, and was elected an Associate of the Linnean Society in 1790. He prepared a botanical *Materia Medica*, which appeared in 1812. He died in 1831.

SPENCER.

The Complete British Traveller, by N. SPENCER, a folio volume published in London, 1771, a copy of which is in the British Museum Library with press-mark 1854 a, contains a few references to the plants of Berkshire. The plants mentioned are:—*Wood Betony*, in many parts of Windsor Forest; *Cranesbill*, in the woods near Windsor; *Ground Pine*, in the Vale of the White Horse; *Hedge Mustard*, near Ockingham; *Catmint*, found in the watery places near the Thames [a most unlikely habitat]; *Mugwort*, in the neighbourhood of Wantage; *Pennyroyal*, in the watery places near the confluence of the Ock and Lambourne. [The watershed of the Ock and Lambourne is the White Horse range, the few dew-ponds on the Chalk contain no *Mentha Pulegium*, so far as my observation goes.] *Horse Mint*, near Hungerford; *Hedge Hyssop*, in

¹ For further particulars see the *Annual Biographies and Obituaries* for 1821, pp. 97–120; *Gentleman's Magazine* for 1820, vol. i. pp. 574, 637, 638, and vol. ii. pp. 86–88, 99; the *Annual Register* for 1820, vol. ii. pp. 1153–63; Weld's *History of the Royal Society*, London, 1848, pp. 103–305; Barrow's *Sketches* (1849), pp. 12–53; and an article by Mr. Daydon Jackson in the *Dictionary of National Biography*, vol. iii. p. 129.

great plenty on the banks of the Ock. By the latter plant probably is meant *Scutellaria galericulata*.

BENJAMIN STILLINGFLEET, grandson of Edward Stillingfleet, Bishop of Worcester, was born about the year 1702, was educated at Norwich School, and entered Trinity College, Cambridge, in 1720. After leaving college Stillingfleet travelled on the Continent, and upon his return passed an unambitious life, which was chiefly devoted to the study of books and nature. He subsequently obtained the post of Barrack-master at Kensington. He published certain volumes of poems, and also a volume of *Miscellaneous Tracts*, the first edition of which was printed in 1759, consisting chiefly of translations from Linnaeus' *Amoenitates Academicæ*. To this work were annexed a *Calendar of Flora* and *Observations on Grasses*. This latter portion is well done, and the figures of the grasses above the average. Six species of grasses are mentioned as occurring in Berkshire, namely *Alopecurus pratensis*, *Cynosurus*, *Agrostis vulgaris*, *Festuca* (*Panicularia*) *fluitans*, *Aira* (*Deschampsia*) *flexuosa*, *Festuca ovina*; five of these are additions to the county flora. My own copy of the *Miscellaneous Tracts* is the third edition, dated 1775. The subject of our memoir died in Piccadilly, London, on Dec. 15, 1771, at the age of sixty-nine, and was buried in the Church of St. James.

Gray, the poet, in one of his letters, dated 1761, mentions Stillingfleet in the following terms: 'I have lately made an acquaintance with this philosopher, who lives in a garret in the winter, that he may support some near relations who depend upon him. He is always employed, consequently, according to my old maxim, always happy, always cheerful, and seems to me to be a worthy, honest man.' He ordered all his papers to be destroyed at his decease. The genus *Stillingia* commemorates the 'philosophical naturalist.'

A work entitled *Indigenous Botany*, by COLIN MILNE and ALEXANDER MILNE AND GORDON, made its appearance in 1793. It was an account of British plants, arranged according to the Linnaean method of classification, and the special feature in it was that it gave copious and precise localities of plants, 'the result of several excursions chiefly in Kent, Middlesex, and the adjacent counties in 1790-92.' One volume only was published containing the Linnaean classes as far as the Pentandria. The authors in the course of their explorations visited the neighbourhood of Reading, and observed *Polemonium caeruleum* 'between Reading [possibly it should be Newbury] and Speenhamland,' but it could not have been native there. They saw *Potamogeton pectinatus* in great abundance at Caversham, also *P. compressum*, and they state that *Sison inundatum* (*Apium inundatum*) 'grows by Caversham Bridge plentifully and in the marshes about Newbury.'

Mr. Milne was a native of Aberdeen and a LL.D. of Aberdeen

University. He was Rector of North Chapel in the county of Sussex, but was non-resident; he died at Deptford in 1815. Roxburgh dedicated the genus *Milnea* to him; it is the *Aglais* of Loureiro. Mr. Gordon was the son of James Gordon, the Nurseryman, of Mile-End.

GOOD-
ENOUGH.

SAMUEL GOODENOUGH, Bishop of Carlisle, born at Kimpton near Weyhill in Hampshire on April 29, 1743, was the third son of the Rev. W. Goodenough, Rector of Broughton Poggs in Oxfordshire. On the return of his father in 1750 to the family living of Broughton, where he had considerable landed property, Samuel was sent to school at Witney, under the Rev. B. Gutteridge, of Emmanuel College, Cambridge, and five years later to Westminster, where he became King's Scholar. In 1760 he was elected to a Studentship at Christ Church in Oxford, and took the degree of Bachelor of Arts on May 9, 1764, of Master of Arts on June 21, 1767, and of Doctor of Civil Law on July 11, 1772. He was an under-master at Westminster for four years, and then succeeded, on the death of his father, to the advowson of Broughton, and was appointed at the same time by his College to the Vicarage of Brize Norton, also in Oxfordshire. In 1770 he married the daughter of Dr. James Ford, a distinguished medical teacher, and two years later, at the instance of certain noblemen, who desired that he should conduct the education of their children, he removed to Ealing, and carried on a school there for twenty-six years, during which time he had the charge of the sons of many distinguished members of the aristocracy. When the Linnean Society was founded in 1787 he was one of the framers of its constitution, and was treasurer during the first year. Besides being a Vice-President of the Linnean Society, he was a Vice-President also of the Royal Society and of the Society of Antiquaries. In 1797 he was presented by the Bishop of Oxford to the Vicarage of Cropredy, and in the following year was promoted to a Canonry at Windsor, and in 1802 to the Deanery of Rochester, which he obtained through the influence of the Duke of Portland, all of whose children had been his pupils. In 1808 he was raised through the same powerful influence to the Bishopric of Carlisle. He died at Worthing on August 12, 1827, and was buried in the north cloister of Westminster Abbey. His portrait hangs in the dining-hall of Christ Church in Oxford, and there is a bust of him in the rooms of the Linnean Society.

Goodenough communicated his classical paper on *British Carices* to the Linnean Society in 1792. It appeared in the *Transactions* of the Society in 1794. Several Carices are here described for the first time. *Carex strigosa* is stated to grow in Wytham Woods, as had been already mentioned in the *Flora Anglica*, and *Carex ampullacea* (*C. rostrata*) and *C. paniculata* are both recorded from Virginia Water. *Juncus bulbosus* was recorded by our author in the *Flora Britannica* and in *English*

Botany (No. 934) from near Windsor, and in the *Botanist's Guide* he is the authority for *Damasonium Alisma* near Windsor. In the *Flora Britannica* (1800) he recorded *Linaria Cymbalaria* for the first time in Berkshire, 'on the walls of Windsor Castle,' and in 1804 *Carex curta* (*canescens*) from Virginia Water, and reported *Menyanthes nymphaeoides* (*Limnanthemum pellatum*) from the Thames at Ankerwyck near Windsor; but the latter plant was already on record, and the locality mentioned is in Bucks.

At the meeting of the Royal Society on November 30, 1827, the President, Mr. Davies Gilbert, pronounced the following eulogium on Dr. Goodenough: 'He has ever sustained the character of a sound and elegant scholar. Entrusted with the education of distinguished personages, and having qualified them for the first situations in the State, he fairly and honourably ascended to the summit of ecclesiastical preferment. To classical and theological learning Dr. Goodenough added a very intimate knowledge of natural history, as is shown by his communication to the Linnean Society, in which his labours have thrown a steady light over an extensive genus of aquatic [*sic*] plants left by all former botanists in obscurity and confusion. The memory of Dr. Goodenough will long be cherished with affection and esteem by all who had the honour of his acquaintance, either in his public or in his private life.'

Besides the paper on the Carices, Dr. Goodenough published a notice of the Porteagle Shark in the third volume of the *Transactions of the Linnean Society*, and a paper on British Fuci in the same volume. He also assisted Withering in the third edition of the *Arrangement of British Plants*, and was a great friend and constant correspondent of Sir James Edward Smith; fifty-two letters of his are published in the *Memoirs and Correspondence of Sir J. E. Smith*, in one of which, dated 1810, he says that '*Monotropa Hypopithys* certainly used to grow in Bisham Woods.' In another, written in 1799, he writes: 'Your *Carex binervis* is a good species; I believe it grows near Hastings.' In another he complains that 'during his whole residence at Windsor, as well as at Rochester, he has not had a naturalist within his reach,' and he adds, 'There is a plant of which I have not a correct notion, namely *Picris hieracioides*. I always took a dwarfish plant, about a foot high, and of a hard roughish tendency, to be that, but the Eton botanists assured me that a smooth plant, which grew just over the ferry lane at Datchet, about three feet high, was *P. hieracioides*.' Writing from Rose Castle in 1810, he says that 'he has found a favourite Oxfordshire plant, *Sanguisorba officinalis*, there.'

Sir James Smith named the genus *Goodenia*, in honour of Dr. Goodenough, and says in Rees' *Cyclopaedia*: 'It did not occur to me that *Goodenovia* might have come nearer to the original . . . but it is now too

late to make any such alteration.' Robert Brown gave the name *Goodenovia* to a natural order of plants, and more recently Gay applied the name of *Carex Goodenowii* to the Sedge which Goodenough had mistaken for the Linnaean *C. caespitosa*¹.

SIBTHORP. The *Flora Oxoniensis* of JOHN SIBTHORP, Professor of Botany in the University of Oxford, was published by him in 1794. In this book only one Berkshire locality is mentioned, and the plant which grew there had been already recorded. It has been thought best to abstain from quoting Sibthorp's *Flora* for any other Berkshire plant, as he was careful not to give localities from that county, though the plants of the Thames are common to both counties. Professor Sibthorp, moreover, was careful to limit his remarks to Oxfordshire. A full account of him will be found on pages 387-392 of my *Flora of Oxfordshire*. There is an oil-painting of him in the Library of the Botanical Garden at Oxford, and the MS. of his *Flora* is preserved there.

RUDGE. SAMUEL RUDGE, a native of Elstree in Hertfordshire, collected many plants in the neighbourhood of Sonning in Berkshire, but it is possible that some of them were gathered in Oxfordshire. They were probably obtained about the year 1800, since some of the habitats are given in the *Botanist's Guide*, which was published in 1805. Rudge's general collection is now in the Herbarium of the British Museum, and contains the following species from the district mentioned:—*Clematis Vitalba*, *Ranunculus divaricatus*, *R. Flammula*, *Papaver Rhoeas*, *Silene Armeria* (an escape), *Hypericum perforatum*, *H. pulchrum*, *H. hirsutum*, *Trifolium medium*, *Lotus corniculatus*, *L. uliginosus*, *Astragalus glycyphyllos*, *Potentilla Anserina*, *Peplis Portula*, *Bryonia dioica*, *Hedera Helix*, *Galium palustre*, *Dipsacus sylvestris*, *D. pilosus*, *Scabiosa Columbaria*, *Filago germanica*, *Bidens tripartita*, *Achillea Millefolium*, *Chrysanthemum Leucanthemum*, *C. Parthenium*, *Matricaria inodora*, *Senecio Jacobaea*, *Arctium Lappa*, *Onicis lanceolatus*, *C. acaulis*, *C. arvensis*, *Centaurea nigra*, *Picris Echioides*, *Leontodon autumnale*, *Anagallis arvensis*, *A. tenella*, *Lycopsis arvensis*, *Myosotis palustris*, *Verbena officinalis*, *Verbascum Thapsus*, *V. Lychnitis*, *V. nigrum*, *Linaria vulgaris*, *Antirrhinum majus*, *A. Orontium*, *Pedicularis sylvatica*, *Galeopsis Tetrakit*, *Mentha aquatica*, *Nepeta Cataria*, *Stachys palustris*, *Galeopsis angustifolium*, *Lamium purpureum*, *L. album*, *Ajuga reptans*, *Mentha rubra*, *Origanum*, *Plantago majus*, *P. lanceolata*, *P. media*, *Polygonum aviculare*, *P. amphibium*, *Urtica dioica*, *Juncus glaucus*, *J. sylvaticus*, *Arum maculatum*, *Lemna polyrhiza*, *Alisma Plantago-aquatica*, *Potamogeton natans*, *Eleocharis acicularis*, *Scirpus maritimus*, *Eriophorum angustifolium*, *Carex muricata*, *C. divulsa*, *Sieginglingia*

¹ The reader is referred for further information to Nichols' *Illustrations*, i. 245; *English Botany*, 2206, &c.; *Royal Society Calendar*, ii. 934; *Smith's Correspondence*, vols. i. and ii; *Transactions of the Linnean Society*, ii. 126; *Dictionary of National Biography*, xxii. 125; *Welch's Alumni Westmonasterienses*, pp. 374-5; and *Mathias' Pursuits of Literature*.

decumbens, *Dactylis glomerata*, *Molinia varia*, and *Briza media*, which are the earliest vouchers for the occurrence of the plant in our county¹.

The *Botanist's Guide*, by DAWSON TURNER and LEWIS WESTON DILLWYN, *Botanist's Guide*, was published in 1805. It contains a list of sixty-seven plants from

Berkshire, and of these about thirty are either additions to the flora of the county, or are here recorded for the first time in print as belonging to Berkshire. The notes to the work are contributed by Mr. Gotobed of Eton, Mr. Rudge of Sonning, whose plants are in the Herbarium of the British Museum, the Rev. H. Davies, Mr. Fardon, Mr. E. Forster, and others. Among the interesting plants here noted are *Agrostis* (*Apera*) *Spica-venti*, *Scirpus* (*Eleocharis*) *acicularis*, *Avena pubescens*, *Dipsacus pilosus*, a variety of *Galium verum*, *Sison* (*Carum*) *segetum*, *Myosurus minimus*, *Euphorbia Lathyris*, *Mentha Pulegium*, *Antirrhinum minus* (*Linaria viscida*), *Cardamine amara*, *Sisymbrium sylvestre* (*Roripa sylvestris*), *S. Irio*, *Turritis glabra* (*Arabis perfoliata*), *Geranium pratense*, *Astragalus glycyphyllus*, *Carex binervis*, *C. laevigata*, *Myriophyllum verticillatum*, *Alisma Damasonium* (*Damasonium Alisma*), *Saponaria officinalis*, *Lythrum hyssopifolium* (*Hyssopifolia*), *Datura Stramonium*, *Rhamnus catharticus*, *Thesium linophyllum* (*T. humifusum*), *Vinca major*, and *Oscuta europaea*.

Of Mr. Fardon I have been unable to obtain any particulars, and of Mr. Gotobed so much only, that he contributed records of Buckinghamshire and Berkshire plants to the *Botanist's Guide*, and to *English Botany* (see Nos. 738, 1295, 1501), and that he was a Fellow of the Linnean Society.

DANIEL LYSONS, son of the Rev. S. Lysons, Rector of Rodmarton and LYSONS. Clerrington, Gloucestershire, was born in 1762. He was educated at the Grammar School at Bath, and entered at St. Mary Hall, in Oxford, on March 25, 1779. He took the degree of B.A. in 1782 and of M.A. in 1785, and became Curate of Mortlake in 1784. In conjunction with his brother Samuel, he undertook the compilation of the work known as *Magna Britannia*, in six volumes quarto. The volume which dealt with Bedfordshire, Berkshire, and Buckinghamshire was issued in 1806. In it the occurrence in Berkshire of the ash, hazel, oak, and snowdrop is alluded to, and the discovery by Dr. Beeke of *Lycopodium inundatum* and *L. Selago* is recorded. The original letters, sketches, and drawings relating to the *Magna Britannia* are preserved in the British Museum, where they are numbered 9408 to 9471.

The Rev. H. BEEKE, D.D., Dean of Bristol, was born at Kingsteignton BEEKE. in Devonshire, Jan. 6, 1751. He was elected Scholar of Corpus Christi College in Oxford on May 5, 1769, and took his B.A. degree in 1773, his M.A. degree in 1776, his B.D. degree in 1785, and his D.D. degree in 1800. He was elected Fellow of Oriel College in 1775, was Junior

¹ Some notice of the subject of our memoir will be found in the *Proceedings of the Linnean Society*, i. 337, and in Pryor's *Flora of Hertfordshire*, p. xlii.

Proctor in 1784, and was appointed Professor of Modern History in 1801. He became Vicar of St. Mary the Virgin in Oxford in 1782, but relinquished that cure in 1789 for the living of Ufton Norcot in Berkshire. In 1814 he was made Dean of Bristol.

When at Ufton, Beeke took considerable interest in Botany, and contributed to Lyson's *Magna Britannia* records of the occurrence in Berkshire of *Gentiana Pneumonanthe*, *Lycopodium Selago*, and *Lycopodium inundatum*. In the *Botanist's Guide* we have a record by him of *Euphorbia Lathyris* which he noticed at Ufton 'springing up in dry stony thickets periodically, for a year or two after these have been cut and till choked by briars,' &c. He sent a specimen to Sir James Smith in 1801, which was figured in *English Botany* (No. 2255).

In the herbarium of Sir James Smith, in the rooms of the Linnean Society, is a letter which Beeke addressed to Sir James on the subject of the Hop Trefoils which occurred about Ufton. The letter is as follows: 'Ufton, near Reading, Berkshire, June 25, 1800.—I do myself the pleasure to send you four specimens of *Trifolium*, common enough all of them, but hitherto I think somewhat misunderstood by English botanists. All four were taken from a very dry flinty gravelly natural pasture near my house, which was inclosed from a Common a few years ago, and which I have usually cut for hay every other year; and consequently have had frequent opportunities of observing carefully the various plants which grew upon it. All four grow indiscriminately, and the luxuriance of No. 2 is by no means accidental, or owing to superiority of soil. I presume that these specimens include the *Trifolium procumbens* and the *T. filiforme* of your *Flora Britannica* and of the last edition of Withering; that No. 1 is *T. agrarium*, No. 3 *T. procumbens*, and No. 4 *T. filiforme* of the second edition of Withering; I conjecture also that No. 1 is an English variety of the *T. spadicea* of Linnaeus' *Species Plantarum* (3rd edition, p. 1087), that Nos. 2 and 3 are two permanent varieties of the *T. procumbens* of the same work, and that No. 4 is the true *T. filiforme* of Linnaeus; and I have no doubt in calling it a perfectly distinct species, but I believe it may have been lately confounded with No. 3, that is with the smaller varieties of *T. procumbens*. The characters which I have observed are constant in all situations, namely, No. 1. Leaflets sitting on a peduncle. Heads many-flowered, closely tiled with broad scored standards, pale sulphur-coloured at first, and afterwards spadiceous. Stalks non-naturally procumbent. Legumes closely and regularly reflected. Nos. 2 and 3. Middle leaflet only on a pedicle. Heads 10 to 30 flowers. Flowers sitting on a straight stiff peduncle; standard not broad and obscurely if at all scored. Legumes closely and regularly reflected. No. 4. All the leaflets sitting. Heads 3 to 8-flowered on very slender flexile peduncles and on separate pedicels. Legumes not closely or regularly reflected,

but only their pedicels curved and mostly in one direction. No. 3 [?] has always been the most luxuriant of all the Diadelphous plants in the close from which the specimens are taken. Cattle and sheep are so fond of it that it can scarcely be found in any pastures which they have access to. I intend this year to save seed enough to begin its cultivation, and I believe that it will prove one of the most valuable upland plants which we can adopt. I shall be very glad to know your opinion on the subject of this letter, when you have leisure. I intend sending proper specimens to Mr. Sowerby, as also of *Lotus corniculatus*, respecting which I am more than ever persuaded of the truth of my observations.—I am, dear Sir, yours faithfully, H. BEEKE.¹

No. 1 is probably a small form of *Trifolium procumbens*, L. Nos. 2 and 3 are *T. dubium*, Sibth., 3 being the more luxuriant. No. 4 is *T. filiforme*, L. The specimens, which are, as we have seen, from Berkshire, are in Sir James Smith's herbarium, in which a specimen of *Bupleurum Odontites* from Torquay, gathered by Dr. Beeke in 1812, is also preserved. In the *English Flora*, vol. iii. p. 312, Sir James says: 'The larger variety of the *Trifolium minus*, with its succulent brittle stem, retained all its diversity of habit, and remained constant when propagated by seed. Still there is no specific character!'

In a letter in the *Smith Correspondence*, dated Ufton, Oct. 1799, Dr. Beeke says: 'The remarkably beautiful pale pink variety of *Convulculus* [*Calystegia*] *sepium*, of which I am not aware that any particular habitat is noted, grows plentifully by the Turnpike road near the Manor House of Tidmarsh by the side of a coppice. . . The *Inula*, called by Dr. Sibthorp *I. uliginosa* [*Pulicaria vulgaris*], grows plentifully in the parishes of Burghfield and Mortimer.'

The Reverend WILLIAM FORDYCE MAVOR (the name was originally MAVOR. Mac Ivor, as I learn from the Rev. W. D. Macray, of the Bodleian Library), LL.D., was born at New Deer near Aberdeen on Aug. 1, 1758. In 1775 he was a master in a school at Burford and subsequently at Woodstock, and through the influence of the Duke of Marlborough, to whose children he was tutor, he was enabled to take holy orders in 1781. He became Vicar of Hurley and afterwards Rector of Stonesfield; this latter preferment he exchanged for Bladon and Woodstock, and founded a school at Prince's Place, where Edward the Black Prince is said to have been born. In 1785 he was nominated and appointed Curate of Westcote Barton by the

¹ Dr. Beeke described *Lotus uliginosus* under the name of *L. pilosus*, recorded *Anchusa sempervirens*, and was the discoverer of *Barbarea praecox* in England. See also *Gentleman's Magazine*, n. s. vol. vii.; Felix Farley's *Bristol Journal* (1837); Egerton MS. 2. f. 193; Addit. MSS. 31229 and 31232; Turner and Dillwyn, *Botanical Guide*, pp. 527-8; *Dictionary of National Biography*, iv. 124; *Magazine of Natural History*, 61 (1837) 392.

Rector, Edward Segrave, at a stipend of £27 6s. with surplice fees. He wrote a poem on Blenheim, to which he added a *Blenheim Guide* in 1787. In 1789 he received the degree of LL.D. from the University of Aberdeen. In 1800 he published *The Botanical Pocket-book*. On July 12, 1810, he was licensed by the Bishop to be Headmaster of Woodstock Grammar School. He had previously written 'A new description of Blenheim,' the eighth edition of which appeared in Oxford in 1810, and contained a list of plants found growing in the vicinity of Woodstock; but many of these, owing to cultivation and enclosure of the common lands, are no longer to be seen. Dr. Mavor was a prolific writer of educational works during the long space of fifty years. It has been said of him that 'this illustrious author, who had contributed so largely to the introduction of education among the youth of Great Britain, was able on a review of his extensive labours to record his satisfaction that he could contemplate what he had done without a fear and without a blush; the consciousness that he had meant well, however imperfect his performance, and that he had never by a single sentiment pandered to vice or injured the cause of virtue, will shed a gleam of sunshine on the closing scenes of life. How far more precious than all the incense which fame can offer is such a self-approving verdict as this.'

In 1809 Dr. Mavor published his *General View of the Agriculture of Berkshire*. In the preface, which is dated Nov. 20, 1808, the author says: 'It is now upwards of three years since the Report of Berkshire was delegated to me [by the Board of Agriculture], and had not ill-health clouded many of the intervening days, had not various avocations as well as the duties of an active profession occupied many more, the undertaking would probably have been completed in a much shorter space. This however I can aver, that though I have been almost wholly engaged for the last eight months in arranging and drawing up the materials previously collected, I could have spent as many more on the composition before I could have pleased myself. . . . For the county which has been the scene of my present labours I had long borne a partial regard, and I have every reason to retain my attachment now that I know it better.' The volume, an octavo of 548 pages, is interesting to botanists, since it contains a list of the plants of the county, and this list may be considered to be the basis of the county flora. It is made up of about 560 species, of which about 270 appear to be new to the county; ten perhaps are errors, and many of the records which are not absolutely new are here published for the first time. Dr. Mavor explains that he 'is indebted for his list in a great measure to the botanical researches of Dr. Noeheden [so spelled by Mavor throughout] of Windsor and Mr. Bicheno of Newbury.' About 125 of the new records fairly belong

to Dr. Mavor, and he has published many of the plants previously recorded in other works. A considerable number of his own and Noehden's records are without precise localities, but the properties of many of the plants are given. The list occupies forty-two pages of the book. The *Agricultural View* is divided into eighteen chapters with six appendices. The first chapter treats of the position, divisions, climate, soil, minerals, and water of the county. Chapters 2 to 6 are devoted to agricultural subjects. Chapter 7 describes the arable, and Chapter 8 the grass-lands and their crops. Chapter 9 is on gardens and orchards, Chapter 10 on the woods and plantations, and Chapter 11 on 'Wastes.' Chapters 12, 13, and 14 are devoted to Improvements, Live Stock, and Rural Economy. Chapter 15 is on 'Political Economy as affecting Agriculture.' The appendix No. 3 gives an account of the peat-pits near Newbury, and No. 4 some particulars of the water-meadows on the Kennet. Donaldson in the *Agricultural Biography* calls Dr. Mavor's work 'highly creditable, scientific, and practical.' The errors in the list of plants given by Mavor either on his own authority or in reliance on records by Mr. Bicheno or Dr. Noehden are rather numerous. Among them may be mentioned *Melampyrum sylvaticum*, *M. arvense*, *M. cristatum*, *Allium Schoenoprasum*, *Carex arenaria*, *Brassica oleracea*, *Lepidium latifolium*, *Veronica hybrida*, *Stellaria nemorum*, *Callitriche autumnalis*, and *Peucedanum officinale*. The following require confirmatory evidence:—*Tillaea muscosa*, *Ranunculus hirsutus*, *Dianthus deltoides*, *Drosera anglica*, *Urtica pilulifera* [*U. urens* is omitted], *Artemisia Absinthium* [*A. vulgaris* omitted], *Prunus Padus* [*P. avium* is not given], *Mentha piperita* [*M. sativa* not given], *Carex axillaris*, *Salix pentandra*, *Galium erectum*, and some others which require more critical knowledge to determine than was possessed by the compiler.

In the Hope Collection of prints at Oxford there is a portrait of Dr. Mavor, etched by C. Turner, A.R.A., in mezzotint after a painting by Saxon. He was buried in the churchyard at Woodstock, and a memorial of him is placed outside of the wall of the Church with the following epitaph written by his neighbour, friend, and executor, the Rev. Vaughan Thomas:—

'Sacred to the memory of the Rev^d. W^m. Mavor, LL.D., the first great promoter of the catechetical method of instruction in all branches of human as well as of divine knowledge, who though dead yet speaketh, for the improvement of youth and infancy, in the volumes which he benevolently and judiciously adapted to the growing powers of the mind. He was Rector of Bladon with Woodstock and Vicar of Hurley, Berks, a magistrate of the County of Oxford, and ten times Mayor of this Borough. Beloved and esteemed by relations and friends, and respected by those whom, as a minister

and magistrate, he had so long and faithfully served. He departed this life Dec. 29, 1837, in the 80th year of his age.'

Dr. Mavor was twice married; his second wife died at Warwick as late as 1875. His eldest son matriculated at Wadham College in Oxford in 1802, and a third son at Trinity College in 1848. A daughter is still living at Warwick and has kindly given me some information. Dr. Mavor gave a portion of the Communion plate now used in Bladon Church. In the 'terrier' of the Rectorial property, which was prepared by him and kept in the parish chest, is the following note:—'1818, Feb. Planted a row of lime trees along the eastern boundary of Bladon Church yard, which I hope will be preserved as an ornament to the Church and as a memorial of my connection with it. W. MAJOR¹.'

BICHENO.

JAMES EBENEZER BICHENO was the son of the Rev. James Bicheno, a Baptist Minister and Schoolmaster of Newbury in Berkshire, where the son was born (1785) and educated. He became interested in Natural History, especially Botany, contributing a large number of plant-records to Dr. Mavor for the *Agriculture of Berkshire* and to Sir James Edward Smith for the *English Flora*, and joining the Linnean Society in 1812. While residing at Newbury he published a work entitled *An Enquiry into the nature of Benevolence, chiefly with a view to elucidate the principles of the Poor Laws*. Lond. 1817. He married a Miss Lloyd, a native of Newbury, in 1821, who died in childbirth within the year. Having entered at the Middle Temple, he was called to the Bar in 1822, and joined the Oxford Circuit; but he apparently did little in legal practice, his father being well off. In 1824 he was made Secretary to the Linnean Society, and resided for some years at Notting Hill. In 1829 he made an extensive tour in Ireland, which resulted in the publication of a treatise entitled *Ireland and its Economy*, 8vo, London, 1830. In 1832 he removed to Glamorganshire, where he became engaged in some mining works; but this speculation resulted in such severe pecuniary loss that he was obliged to seek elsewhere for some profitable employment. Through the influence of the Marquis of Lansdowne he was appointed one of the Commissioners for inquiring into the expediency of introducing the Poor Laws into Ireland, and in this capacity he was the author of an elaborate separate Report, founded on the evidence that had been collected on the subject. In 1842 he was appointed by Lord Stanley Colonial Secretary of Tasmania, and he died at Hobart Town after a very short illness in Feb. 1851.

His published papers include his *Observations on the Orchis militaris of Linnaeus*, which appeared in the *Transactions of the Linnean Society*,

¹ For further particulars see Allibone, *Dict.* ii. 1250; *Walt. Bibl. Bot.* ii. 657; *Dictionary of National Biography*, xxxvii. p. 108; and *Marshall's Woodstock*, &c.

xii. 28, and show that he gathered the true plant in Berkshire; *Observations on the Linnaean genus Juncus, with the characters of those species which have been found growing wild in Great Britain*, which was printed in the same volume of the *Transactions* (p. 291); *On Systems and Methods in Natural History*, also printed in the *Transactions* (vol. xv. p. 479); and a paper on *The Plant intended by the Shamrock of Ireland*, which appeared in the *Journal of the Royal Institution*, vol. i. (1831). David Don gave the name *Bichenia* to a plant-genus in his honour. A portrait in oils by Eddis was presented by Bicheno to the Linnean Society before his departure for Tasmania.

Of Bicheno we are told that 'he had information on a great variety of subjects,' that 'his conversation was in a high degree agreeable and instructive,' and that 'his society was consequently peculiarly acceptable in the several circles in which he successively moved, the genial amiability of his disposition contributing to render him a universal favourite.' Mavor in his *General View of the Agriculture of Berkshire* says: 'The private friendship of Mr. Bicheno inclined him to give me every assistance in his power in a favourite pursuit. Had he enjoyed more leisure his discoveries would have been more extensive; but at this advanced period of botanical science it is no small fame to have been able to add one plant to the British flora.' In the list of the plants of Berkshire in Dr. Mavor's work the records of Bicheno are marked by the letter B placed against them: in some cases Dr. Noehden has also contributed the record.

Bicheno enumerates the following species as occurring in Berkshire; they are disposed here in three groups, the names being those used by Dr. Mavor. The first group contains those which are believed to be published for the first time and by himself alone, namely—*Adonis autumnalis*, *Adoxa Moschatellina*, *Alisma ranunculoides*, *Atropa Belladonna*, *Bupleurum rotundifolium*, *Campanula hybrida*, *Chironia Centaurium*, *Colchicum autumnale*, *Cuscuta Epithymum*, *Hydrocotyle vulgaris*, *Hypericum humifusum*, *Ligustrum vulgare*, *Mentha viridis*, *Narcissus Pseudo-narcissus*, *Ophrys spiralis*, *Orchis pyramidalis*, *Papaver hybridum*, *Paris quadrifolia*, *Primula elatior* [auctorum non Jacquin], *Ribes Grossularia*, *Rosa spinosissima*, *R. rubiginosa*, *Schoenus compressus*, *Scrophularia vernalis*, *Spergula nodosa*, *Salix repens*, *Vaccinium Myrtillus*, *Veronica montana*, *V. scutellata*, *Vinca minor*, and *Viburnum Opulus*. The second group contains the plants which were published for the first time by Bicheno conjointly with Dr. Noehden, namely—*Anagallis tenella*, *Anthyllis Vulneraria* [this entry is preceded by a manuscript note of Browne's], *Aquilegia vulgaris*, *Aperula cynanchica* [see Harding's MS.], *Butomus umbellatus*, *Campanula glomerata*, *Carduus* (*Cnicus*) *acutis* [in Rudge's herbarium], *Circaea Lutetiana*, *Conyza squarrosa* (*Inula Conyza*), *Galium Cruciatum*, *Hypericum Androsaemum*, *Salvia Verbenaca*, *Tragopogon pratense* [Browne's MS.], and *Valeriana officinalis*. The third group

consists of a large number of plants which were recorded before Bicheno's time, but in many cases these previous records do not give the locality or never appeared in print, being to be found only in old MSS. or attached to specimens. It is too long to be given here, but full justice is done to Mr. Bicheno's work, and his more precise and accurate records will be found under the plants he mentions in the present work.

In addition to the above Bicheno also gives the following records, which are probably erroneous:—*Lepidium latifolium*, *Tillaea muscosa*, *Dianthus deltoides*, and *Gentiana campestris*.

We see then that Bicheno added thirty-one species to our flora, and simultaneously with Dr. Noehden eleven more. He also gave precise localities for twenty-seven other species, which had either been indefinitely recorded, or whose localities had not been published.

To Sir James E. Smith's *English Flora* he contributed records of *Rubus glandulosus* [*R. Koehleri*], *R. nitidus* [*R. plicatus*], *R. leucostachys*, and *Rosa systyla*, and these are first records made by himself alone; the latter had been published previously on Bicheno's authority in Wood's monograph in the *Transactions of the Linnean Society*. In Babington's *British Rubi*, *Rubus Balfourianus* is given from Sheen on Mr. Bicheno's authority.

The following letter of Bicheno's is preserved in Sir James Smith's herbarium in the rooms of the Linnean Society: 'I searched Stokenchurch [Oxfordshire] last summer for Limes [*Tiliae*] and found three, *Tilia parvifolia* plentifully, *T. Europaea* sparingly, of *T. corallina* only one tree. I have no doubt of the last being the plant you have described in Rees under that name, and that it is *T. grandifolia* of Ehrhart (*T. platyphyllos* of Ventenat). Both *Europaea* and *Corallina* appear to be planted at Stokenchurch.' This letter was written about 1824. In 1823 Bicheno writes to Sir James Smith: 'The specimen I have enclosed of a plant from Snelsmore Common near Newbury I have long looked on as a good species, and Mr. Borrer, Mr. E. Forster, and myself had called it *Rubus ericetorum*. It is not common in other places.' The plant is probably *R. plicatus*, W. and N., recorded in Smith's *Flora* as *R. nitidus*¹.

Several of the plants mentioned in the *New Botanist's Guide* as 'Winch's add.' were really gathered by Mr. Bicheno; it is probable that specimens may exist in the Winch herbarium which the Linnean Society thought it wise to give to the Museum of Newcastle-on-Tyne. The plants in the Winch MS. gathered by Mr. Bicheno which appear

¹ For further information the *Gentleman's Magazine*, xxxv. (new series) may be consulted; also Nicholl's *History of the Irish Poor Law*, London (1856); *Report of the Royal Society of Tasmania* (1851); *The Dictionary of National Biography*, vol. v. p. 1; *Proc. of Linn. Soc.* ii. 181; Hooker, *Journ. Bot.* iii. p. 251 (1851).

to be new records are *Silene quinquedulnera* and *Sagina subulata*. The Herbaria of Mr. Bicheno is preserved in the Swansea Museum. Some time since I wrote to the Curator to inquire if it contained any species from Berkshire, but I was informed that there did not appear to be any. Recently, at my request, my friend the Rev. H. T. Riddelsdell, of Aberdare, has kindly examined the collection and found that it contains about seventy or eighty plants from Berkshire, collected between 1810 and 1820. Of these the following take precedence of the first records given in the text of the Flora :—*Arenaria tenuifolia*, *Cerastium quaternellum* (*Moenchia erecta*) from Greenham Common; *Rubus Sprengelii*, Snelsmore Common, 1819 (this, it will be observed, is the date of the publication of the species); *Primula veris*; *Gnaphalium sylvaticum* (*G. rectum*); *Senecio aquaticus*; *Dryopteris montana* (*Aspidium Oreopteris*), Snelsmore Common, 1815; *D. Filix-mas*; *Caucalis arvensis* (*infesta*), Newbury, 1812; *Peucedanum sativum* (*Pastinaca*), Donnington, 1815; *Apium graveolens*, Shippon; and *Chenopodium polyspermum*, Newbury.

The following are from localities additional to those given in the text of the Flora :—*Lysimachia nemorum*, Snelsmore; *Vinca minor fl. alba*, Bucklebury (a garden escape); *Dipsacus pilosus*, Aldermaston; *Bupleurum rotundifolium*, near Oat mill, Abingdon; *Galium erectum*, Newbury; *Sisymbrium Sophia*, near Thatcham Church; *Geranium pusillum*, at entrance to Northroft Meadow, 1814; *Salvia Verbenaca*, Donnington Castle; and *Origanum vulgare*, Newbury; but it will be observed that no light is thrown upon the doubtful records of Mr. Bicheno since *Tillaea* and *Lepidium latifolium* appear not to be represented in the collection from Berkshire.

GEORGE HENRY NOEHDEN was born at Göttingen on Jan. 23, 1770. NOEHDEN. He was educated at the University there, and afterwards came to England to be private tutor to the son of Sir William Milner, of Nun-Appleton in Yorkshire. He accompanied his pupil to Eton, where he resided from 1794 to 1797. In 1796 he was introduced to Earl Fitzwilliam, who ever afterwards distinguished him by his friendship. He was made LL.D. in the same year, and joined the Linnean Society in 1800. In 1818 he went to Weimar to superintend the education of the children of the hereditary Grand Duke of Saxe-Weimar. In 1820 he became a librarian of the British Museum, and in 1821 was chosen as superintendent of the Department of Antiquities and Coins. Among his published works are *A Description of Lord Northwick's Greek Coins*, *A German Grammar*, *German Exercises*, and a translation of two plays in collaboration with John Stoddart. He was Vice-Secretary of the Horticultural Society, to which he communicated eighteen papers on the varieties of *Citrus* and other horticultural subjects between the years 1817 and 1823. In 1823 he was chosen Hon. Sec. to the Asiatic Society.

In the unpublished correspondence of Sir James E. Smith in the possession of the Linnean Society there is a letter from Noehden to Sir James, complaining that the Secretary of the Society addressed him simply as Mr. Noehden, just as if he was an ordinary tradesman, instead of G. H. Noehden, Esq. In December, 1822, he writes to Sir James Smith from Milton near Peterborough, where he was staying at the Earl of Fitzwilliam's, to propose that Dr. Schwägrichen should be elected a foreign member of the Linnean Society. It is stated in *English Botany* that Dr. G. H. Noehden found *Lichen aleurites* on March 1, 1801 (see No. 858), and that 'our perfect specimens of *Lichen cretaceus* were gathered on the chalk by Dr. Noehden and Mr. Gotobed of Eton on May 1, 1800' (see No. 738). The present writer ventures to identify the Dr. Noehden above described with the Dr. Noehden mentioned in Mavor's *General View of the Agriculture of Berkshire* in the following terms: 'For the following list of plants, the most ample by far that has ever been exhibited in this county, I am in a great measure indebted to the botanical researches of Dr. Noehden of Windsor and Mr. Bicheno of Newbury. The contributions of the former I owe to the kind attentions of the Rev. Mr. Townshend of Bray to promote the object of my enquiries, and I have only to regret that the Doctor, having kept no written memoranda and having made his excursions some years back, was unable to name the exact habitats of the plants he discovered. The district he examined, however, includes the vicinity of Windsor on one side as far as Bagshot Heath, and on the other to Bisham Woods.'

The list of which Mavor speaks includes 132 plants given by Noehden, but which had been recorded before; 155 appear to be additions to the county, seven are only of casual occurrence, and ten more were recorded for the first time by Noehden in conjunction with Bicheno. These numbers are exclusive of several records which are probably errors: *Allium Schoenoprasum* should probably be *A. vineale*; *Brassica oleracea* is a misnomer; *Geranium moschatum* means *Erodium cicutarium*; *Salix pentandra*, *Carex arenaria*, *Stellaria nemorum*, *Melampyrum arvense*, *M. cristatum*, *M. sylvaticum*, *Peucedanum officinale*, and *Veronica hybrida* are undoubtedly wrong; *Urtica pilulifera*, *Filago arvensis*, *Drosera anglica*, and *Callitriche autumnalis* are mistakes for *Urtica urens*, *Gnaphalium uliginosum*, *Drosera longifolia*, and *Callitriche intermedia* respectively. Dr. Noehden, in the same work, says that he has met with several cryptogamous plants, especially in Windsor Forest, where valuable specimens of fungi have also been found.

The list supplied by Dr. Noehden, notwithstanding its somewhat numerous errors, must be considered as one of the most important contributions to our knowledge of the flora of Berkshire.

Dr. Noehden died on March 14, 1826, aged fifty-six, and was buried in the Church of St. John the Baptist in the Savoy. He was never married. For further particulars see the *Gentleman's Magazine*, May, 1826, pp. 466-8.

JAMES BENWELL, a gardener employed for more than forty years in the Botanic Garden at Oxford, though uneducated, was a man of great natural intelligence and possessed a good knowledge of British plants. He was employed by Dr. Sibthorp in the preparation of the *Flora Oxoniensis*, and is said to have been the first who observed *Paris quadrifolia* and a few other rare plants in Oxfordshire, and *Anthemis arvensis* in Berkshire in 1812. Baxter, in *Phænogamous Botany*, says: 'His integrity and industry, and a natural propriety and civility of manner, gained him the respect and esteem of all who knew him.' He died on Oct. 7, 1819, aged eighty-four years. A print of him, a very characteristic likeness, engraved by Mr. Skelton from a drawing by Mr. A. Burt, is in the Library of the Botanic Garden at Oxford.

The *Midland Flora*, to shorten its somewhat lengthy title, was published in two volumes, in 1817. It was compiled by THOMAS PURTON, *Midland Flora*. who was born at Endon Burnell in Shropshire in 1768. He received his education first at Alveley, and afterwards at Downton near Shrewsbury, and then became a pupil of a surgeon at Alcester, named Bloxam, whose daughter he afterwards married. He practised at first in London, but eventually entered into partnership with his father-in-law, and resided at Alcester till his death in 1833.

An appendix to the *Midland Flora* appeared in 1821. In this third volume many references will be found to Berkshire and Oxfordshire plants, the records being furnished chiefly by Mr. W. Baxter. The Rev. W. T. Bree, the Rev. W. S. Rufford, and Prof. Williams also assisted. Four plants are added to the Berkshire flora, namely, *Orobanche minor* (*O. Trifolii-pratensis*) by Prof. Williams, *Ranunculus Lingua*, *Silene noctiflora*, and *Lathyrus Nissolia* by Mr. Baxter. Mr. Rufford, of Badsey in Warwickshire, the friend and helper of Purton, gave the localities of a few Oxfordshire and Berkshire plants for insertion in the *Flora*, but they had already been placed on record; some of the plates in the work were drawn by his wife. He died in 1836. The Rev. W. T. Bree, a Warwickshire man, was born at Coleshill in 1787. BREE. He was educated at the Warwick Grammar School, and proceeded from thence to Oriel College in Oxford, where he took his B.A. degree in 1808 and his M.A. degree in 1816; he became Rector of Allesley in Warwickshire on the death of his father, and died at Allesley in 1863. He was a contributor to the *Phytologist* and to other contemporaneous Natural History Journals. His contributions from Berkshire added nothing to the flora of that county, but his discovery of *Lonicera Caprifolium* in Bagley Wood placed that plant on more definite record

for Berkshire. It is said that he was the first to point out that *Lastrea rigida* (*Dryopteris rigida*) was a British plant¹.

PROFESSOR
WILLIAMS.

GEORGE WILLIAMS, Professor of Botany in the University of Oxford, was born at Catherington in Hampshire, and matriculated at Corpus Christi College, Oxford, in 1777, at the age of fifteen. He took his B.A. degree in 1781, his M.A. degree in 1785, and his M.B. and M.D. degrees in 1788, and was elected Probationer Fellow of his College in 1788. In 1796 he was appointed Sherardian Professor of Botany on the death of the eminent botanist, John Sibthorp. He became physician to the Radcliffe Infirmary and Radcliffe Librarian in 1799. He was long a leading Fellow of his College, of which he was Vice-President in 1832.

Professor Williams, though not an active botanist like his distinguished predecessor, and though he took no prominent part in teaching botany, yet possessed some knowledge of British plants, and made several notes respecting them in a copy of the *Botanist's Guide* now in the Library of the Botanic Garden. Some of these notes were published in Purton's *Midland Flora*, and one or two in *English Botany*; two of them concerned plants that were additions to the flora of Berkshire, namely *Daphne Mezereum* (probably not a native in the locality given by the Professor) and *Orobanche Trifolii-pratensis*. A specimen, gathered probably by himself and labelled *Viola lactea*, from Otmoor in Oxfordshire, is *V. persicaefolia*. His copy of Smith's *Compendium*, with MS. notes of localities of British plants, is in the possession of the author. These notes were made before 1819. See also the *Gentleman's Magazine* for March, 1834.

SIR J. E.
SMITH.

SIR JAMES EDWARD SMITH was born at Norwich on Dec. 2, 1759, the eldest of seven children. His father, a Unitarian, was a respectable dealer in the woollen trade; he was a man of considerable intellectual power and cultivated mind, and also a good French scholar. The son James was educated at home under the best masters to be found in Norwich, and early acquired a knowledge of Latin, French, and Italian. In his eighteenth year he began the study of botany as a science. The first book which he could procure was Berkenhout's *Outlines of Natural History*, the author of which work died at Besilsleigh. 'From this book,' says James Smith, 'I first comprehended the nature of systematic arrangement and the Linnaean principles, little aware that at that instant the world was losing the great genius who was to be my future guide, for Linnaeus died on the night of January 11, 1778.' Having made up his mind to study for the medical profession, James Smith set out on the journey to Edinburgh on Oct. 14, 1781, and there studied botany under Dr. Hope. Several letters from him

¹ See also the *Flora of Warwickshire*, p. 495; the Rev. F. L. Colville's *Worthies of Warwickshire*; and the *Journal of Botany* for 1888, p. 147.

to his parents during his residence in Edinburgh are printed in the *Memoir* by Lady Smith; in one of these he describes his ascent of Ben Lomond, and gives a list of the plants he found on that mountain. He left Edinburgh in 1783, and proceeded to London for the purpose of studying anatomy. From thence he writes that he is charmed with John Hunter, the eminent surgeon; 'he alone,' he says, 'is worth coming to live in London for.' He also made acquaintance with Sir Joseph Banks, and it was in London that he first heard that the museum and library of Linnaeus were for sale, Sir Joseph Banks having had the first offer of them from Dr. Acrel for the sum of one thousand guineas. 'It happened that day,' says Smith, 'that I breakfasted with Sir Joseph Banks, and he told me of the offer he had had, saying that he should decline it; he handed me the letter to read, and advised me strongly to make the purchase.' The father at Norwich yielded to his son's request, and supplied the requisite sum of money: the purchase was therefore effected, to the disappointment of Professor Sibthorp of Oxford, who was anxious to obtain a collection, which, united to those which the University already possessed, would have placed it in a distinctly pre-eminent position. In a letter to his father, Smith writes: 'The whole number of volumes of the Linnean Library thus purchased is about 3,000, the MSS. also being very valuable; the herbarium consists of about 19,000 plants, and there are over 3,000 insects.' Directly after the ship *The Appearance* containing the collection had set sail from Sweden, Gustavus III, who had been absent in France, returned home and sent a ship of war to the Sound to intercept the English ship, but happily too late. The collection was first deposited in hired apartments in Chelsea. Sibthorp addressed a letter to Smith on Jan. 1, 1785, in which he says: 'Give me leave to congratulate you upon your late acquisition of the Linnean cabinet. The disappointment I feel in not possessing it myself is in a great measure alleviated by the kind opportunity you offer me of consulting it on my return to England. We were competitors from a laudable ambition, and I trust are not worse friends for our competition. You have left me only one wish, that in case you should ever be disposed to part with it, you will give me the first refusal.' On May 28 of the same year, Smith was admitted a Fellow of the Royal Society. In 1786 he commenced a tour through Holland, France, Switzerland, and Italy, the immediate object of which was to obtain a medical degree at Leyden. He writes from Naples to his father in 1787, that while in Rome he had frequently seen the Pretender, 'who drinks very hard.' In Nov. 1787 he returned to England, and in 1793 published his *Sketch of a Tour on the Continent* in three volumes octavo. Through the friendship of Dr. Goodenough he was introduced to Queen Charlotte, who gave him

permission to instruct the Princesses in botany, and a pleasant series of lessons was given them by him ; but the Queen happening to read one day a passage in his book, in which he had eulogized Rousseau, and another in which he had made a remark which displeased her on the unhappy Queen of France, these sentences led to the withdrawal of the royal favour. In 1788, in conjunction with Sir Joseph Banks, Dr. Goodenough, and a few others, Smith procured the foundation of the Linnean Society, and the first meeting was held at his house in Great Marlborough Street on April 8 in that year, when he delivered 'A Discourse on the Rise and Progress of Natural History'; he was at the same time made President of the new Society. From this period onwards he gave lectures on botany, which were attended by the Duchess of Portland and other members of the aristocracy, and by many professional men. These lectures were delivered at his own house. In 1790 he undertook to write a Flora of Britain under the title of *English Botany*, but his name did not appear as the author of the work until he publicly acknowledged it in a preface to the fourth volume, which appeared in 1795. The excellent figures were from the pencil of James Sowerby. The plates are 2,592 in number, and include the Cryptogams. The work was not completed till the year 1814; in its original form it extends to thirty-six volumes. The compilation of this work necessarily brought the author into correspondence with the principal botanists of Great Britain, and many interesting letters were published in the *Memoir* of him by his widow. The specimens sent to him are for the most part preserved in the herbarium of the Linnean Society; those from which Sowerby drew his figures, and the original drawings, are in the Natural History Department of the British Museum. A letter from the Rev. T. Butt to Smith says: 'If ever you have leisure in any future visit to Oxford, I much wish that you would go to Elsfield Wood and ascertain what probabilities there are for considering *Lonicera Caprifolium* as wild there; I think they rest on as firm foundation as any other plant with a single habitat.' Elsfield Wood is in Oxfordshire, but the plant in question has been found in Bagley Wood in Berkshire. In 1794 Smith commenced his *Flora Britannica*, which was completed in three volumes in 1804; 'like all his other labours, it is remarkable for accuracy in recording, accuracy in observing, and unusual accuracy in printing; being written in the Latin tongue, the information it contains is condensed into a small compass, while it has the rare advantage of having had every synonym compared with the original author.' The *Compendium Florae Britannicae* was published in 1800. In the *Flora Britannica* the following plants were recorded as occurring in Berkshire: *Elymus europaeus*, *Juncus bulbosus* (*J. compressus*), and *Linaria Cymbalaria*, the two last on the authority of Dr. Goodenough. While

engaged on the *Flora Britannica*, Smith was selected by the executors of Professor Sibthorp to complete the *Flora Graeca*. The drawings for that work, by Ferdinand Bauer, the first of the kind ever produced, are preserved in the Library of the Botanic Garden at Oxford. The letterpress, written by Smith from the scanty notes left by Sibthorp, is very good, and the work, completed in ten large folio volumes bound in five, is one of the most sumptuous works ever published on a botanical subject: it is said that an incomplete copy has been sold for £500. Sibthorp's plants are in the herbarium of the Botanic Garden at Oxford. Sir James was a contributor to Rees' *Cyclopaedia*, and wrote all the articles on botanical subjects which appeared in it after 1808, with the exception of a few by Drake. These articles are in number 3,348, exclusive of fifty-seven biographies. He also contributed fifty-two papers to the *Transactions of the Linnean Society*. In 1821 he published *Selections from the Correspondence of Linnaeus and other Naturalists*, in two volumes. His next work was *The English Flora*, the first and second volumes of which were published in 1824, the third in 1825, the fourth in 1828. To this work he had devoted much of his time for many years. It was pursued with ardour, in spite of the interruptions of declining health, with the anxious desire, often expressed, 'that he might live to finish it.' In this work and in *English Botany* several Berkshire plants are mentioned. In *English Botany*, *Myrica Gale* is said to occur near Bagshot; *Orchis militaris* is recorded by Mr. Bicheno as growing near Streatley, and the figure is taken from a Berkshire specimen, but both these plants were already on record. New records are given by Mr. Murray (in 1799) of *Leucorum aestivum* and *Fritillaria Meleagris*, both from the neighbourhood of Reading; also of *Salix ferruginea* by Anderson, and *Viburnum Lantana*. In the *English Flora* Mr. T. F. Forster records *Myosotis cespitosa* and *Elatine tripetala* (*hexandra*); Mr. Bicheno is the authority for *Rosa systyla*, *Rubus leucostachys*, *R. nitidus*, and *R. glandulosus* (the last two being *Rubus plicatus* and *R. Koehleri*). *Muscari*, *Herminium*, and *Salix purpurea* are also given.

The Sherardian herbarium was examined by Smith when he visited Sibthorp at Oxford, and many sheets have his notes on them. In a letter which he wrote to Mr. Roscoe from Hall Place, near Maidenhead, in 1810. he says: 'I am going with Lady East in search of *Monotropa Hypopitys*, which I never yet saw growing, but which I hear grows in the woods at Bisham Abbey hard by, where the unfortunate Plantagenets lie buried. Among these are the famous Earl of Warwick, the king-maker, and the last Earl who died in the Tower.' In 1814 Smith received the honour of knighthood on the occasion of the King granting a charter to the Linnean Society. Sir James' health began to fail soon after the completion of the *English Flora*, and he succumbed to an attack of illness on Monday,

March 17, 1828. He was buried at Lowestoft. There is a bust of him by Chantrey in the rooms of the Linnean Society, and an engraving by Pastorini. The genus *Smithia* was named after him by Aiton, and several British plants bear his name. His herbarium and his correspondence in nineteen volumes are among the treasures of the Linnean Society, which also became possessors, by purchase, of the library and herbarium, &c. of Linnaeus. His widow lived to be 103 years old, surviving him nearly fifty years. Sir James' herbarium contains a few plants from Berkshire which have priority as regards discovery, namely, *Habenaria chloroleuca*, *H. bifolia*, *Listera ovata*, *Potamogeton lucens*, *P. perfoliatum*, and *P. densum*. It has also Dr. Beeke's specimens of species of *Trifolium*, *T. procumbens*, *T. minus*, and *T. filiforme*, and Mr. Bicheno's of the genus *Rubus*.

BAXTER.

WILLIAM BAXTER was born at Rugby on January 15, 1787, and was appointed Curator of the Botanic Garden, Oxford, in 1813. 'At this time,' says a writer in the *Gardeners' Chronicle* for Nov. 4, 1871, 'Botany in Oxford had sunk to its lowest level; Sherard, Dillenius, and Sibthorp belonged to the past. Dr. Williams, who was Professor of Botany, although an elegant scholar, added nothing to botanical science, and for practical instruction in botany the students at Oxford had recourse to the teaching of Mr. Baxter.' In 1817 Mr. Baxter was made an Associate of the Linnean Society, and in 1825 he issued his *Stirpes Cryptogamae Oxonienses*, a work which contains some Berkshire plants. He also made a collection of flowering plants, mosses, and epiphyllous fungi, when the study of the latter plants was limited to a very small number of botanists. In 1831 he visited Rugby with his son, the late Mr. W. H. Baxter, for the purpose of ascertaining what plants grew in that neighbourhood, having it in contemplation to publish a Flora of the district; but this design he never carried into effect, and the manuscript notes for this undertaking, which came into the present writer's possession through the kindness of his grandson, the present Mr. Baxter, have been given to Mr. Bagnall, the author of the *Warwickshire Flora*, who will incorporate them in the next edition of that work. About 400 plants are enumerated in Mr. Baxter's Rugby list. In a subsequent publication, his *British Phaenogamous Botany*, Mr. Baxter writes: 'How often is a little simple flower the source of most delightful and pleasing recollections! Hill Morton is the birthplace of my mother, and the circumstance of merely recording the name of this humble plant [*Peplis Portula*], after having seen it in such abundance there, seems to lead me back to the happy days of my childhood, many of which were spent amongst my relations and friends in that pleasant village.' In 1832 a Natural History Society was founded at Oxford, and Mr. Baxter took a prominent part in its work. In 1834 he commenced the publication of his *British*

Phaenogamous Botany, or Figures and Descriptions of the Genera of British Flowering Plants. The plates of this work, though of unequal merit, are in many cases very excellent, and possess a special value, because each figure is drawn from an individual plant, the locality or origin of which is usually stated. The text bears witness to Baxter's keenness of observation and to his untiring industry. Very many localities, a large number of which are new ones, are given for the rarer plants. Several species are given for the first time as occurring in Berkshire. The Fungi which are found on the various plants are also noticed. In addition to his literary work, he was indefatigable in his management of the Botanic Garden; he raised its level so that the floods were kept out which formerly did much mischief, and he got together with great pains a nearly complete collection of willows, grasses, sedges, and a large number of hardy herbaceous plants, with the result that the Oxford Botanic Garden became, for its size, one of the most celebrated in Great Britain. In conjunction with Dr. Ayres he contributed a paper on the Oxfordshire Cryptogams to the *Phytologist* (see vol. i. pp. 661-702). He also rendered material assistance to Mr. Walker in the preparation of his *Oxford Flora*; indeed almost all the new records—for instance, *Iris foetidissima*, *Pyrus Aria*, *P. torminalis*, *Lachna virosa*, and *Luzula congesta* (*Juncoides multiflorum*, var. *congestum*)—in that work were contributed by Mr. Baxter. He retired in 1851 from the active management of the Garden, and died on Nov. 1, 1871, in the 84th year of his age. There is a print of him in the Hope Collection at Oxford by Whessell, from a drawing by Burt.

The present writer has endeavoured to connect Mr. Baxter's memory with the district by naming after him two hybrid plants which are found in the counties he loved so well, namely *Senecio Baxterii* and *Linaria Baxterii*, and he only regrets that they do not more worthily commemorate 'one whose private life was without reproach, and whose unassuming manner and readiness to assist impressed all who came in contact with him.'

The author is in possession of a considerable number of Mr. Baxter's manuscript notes, which give the results of his botanical wanderings in the neighbourhood of Oxford and add several plants to the Berkshire flora. From these notes the following new records have been obtained of *Ranunculus hederaceus*, *R. parviflorus*, *Geranium pusillum*, *Malva moschata*, *Geranium rotundifolium*, *Valerianella olitoria*, *Calamintha* (*Nepeta*), *C. parviflora*, and *Picris hieracioides*, observed by him in 1812. In Purton's *Midland Flora* he recorded *Erysimum cheiranthoides* in 1819, already given by How; and to the *Appendix* to that work, issued in 1821, he contributed *Lathyrus Nissolia*, *Silene noctiflora*, and *Ranunculus Lingua*. He observed *Rosa tomentosa*, *Senecio erucifolius*, &c., in 1820; *Sedum Telephium*, *Juncus lampocarpus* (*articulatus*), *Bromus commutatus*, *Hypochaeris radicata*,

and *Euonymus europæus* in 1823; *Rosa micrantha* in 1824; *Sium erectum* in 1825; *Leontodon hispidus* in 1827; *Senecio sylvaticus* in 1829; *Gnaphalium sylvaticum* in 1830; *Sedum reflexum* in 1831; and *S. squalidus* in 1833.

The volumes of the *Phaenogamous Botany* give, as additions to the county flora, *Ilex Aquifolium*, *Cornus sanguinea*, *Hieracium umbellatum*, *Ceratophyllum demersum* (Mr. Willis), *Typha angustifolia*, *Populus nigra*, *Anchusa sempervirens* (Dr. Beeke), *Samolus Valerandi* (Mr. Delamotte), *Anemone apennina* (Mrs. Pearce), *Tulipa sylvestris* and *L. latifolius* (Miss Hoskins, the latter record probably an error for *Lathyrus sylvestris*), and a confirmatory notice of the occurrence of *Epipactis palustris*. His later observations refer to the discovery in Berkshire of *Polygonum mite* in 1839, and of *Aira caryophyllæa* and *Elodea canadensis* in 1854. His numerous notes on Oxfordshire plants have already been enumerated in my Flora of that county. Mr. Baxter's MSS. fully bear out the character that he bears for extreme conscientiousness and accuracy¹.

BORRER.

WILLIAM BORRER was born at Henfield, in Sussex, in 1781, and was educated at Hurstpierpoint and Carshalton. His ample fortune enabled him to devote himself to the study of the plants of Great Britain, most parts of which he visited in quest of specimens; and he cultivated the more critical forms in his garden at Henfield, which contained an extensive collection of willows. He published but little; a few pages in the *Phytologist*, some descriptions in the *Supplement to English Botany*, his share with Dawson Turner in the privately-printed portion of the *Lichenographia Britannica*, of which only a few sheets appeared, in 1839, and the descriptions of the species of *Myosotis*, *Rosa*, and *Rubus* in Sir Wm. Hooker's *British Flora* of 1830, almost exhaust the list. He was among the earliest observers in Britain of *Matthiola incana*, *Nuphar minimum*, and *Trifolium stellatum*. He found *Potamogeton praelongus* near Reading, and described it in 1841 in the *English Botany Supplement*, No. 2858. He died at Henfield in 1862. His extensive herbarium is at Kew, where there is also a portrait of him. A genus *Borreria*, now merged in *Spermacoce*, L., was named after him by Meyer, as were also *Rubus Borreri*, *Poa* (*Panicularia*) *Borreri*, and two or three species of mosses and lichens².

HENSLOW.

The Rev. JOHN STEVENS HENSLOW was born at Rochester on Feb. 6, 1796, the eldest of eleven children of J. P. Henslow, a solicitor of that city, where the subject of our notice was educated. In 1814 he entered at St. John's College, Cambridge, graduated in 1818, and became a M.A. in 1821. He was elected F.L.S. in 1818 and F.G.S. in 1819. On the death of Thomas Martyn in 1825, in whose hands

¹ See *Gardeners' Chronicle* (1871), 1426; *Gardeners' Magazine* (1834), 110-13.

² Further information will be found in the *Dictionary of National Biography*, vol. v. p. 406.

the Professorship of Botany in Cambridge had been a sinecure for thirty years, Henslow was appointed Professor, Darwin, Berkeley, and Babington being among his pupils. In 1832 he became Vicar of Cholsey in Berkshire, but he only resided there during the Long Vacation. In 1837 he was presented to the Crown living of Hitcham, in Suffolk, and in 1839 he left Cambridge for that place, and died there in 1861. There is a marble bust of him in the Kew Museum, and a lithograph portrait by Maguire in the Museum at Ipswich. A memoir by L. Jenyns, with a portrait, appeared in 1862. The name *Henslowia* was given to a genus of the *Santalaceae* by Blume; a genus of *Lythriaceae* was named by Wallich *Henslowia*, but it is now the *Cryptomeria* of Blume.

Professor Henslow issued a *Catalogue of British Plants* in 1829 and a second edition in 1836; his *Dictionary of Botanical Terms* was published in 1857. A more detailed account of his life and publications will be found in the *Dictionary of National Biography*, from the pen of Mr. Boulger. Several of his plants are preserved in the Town Hall Museum of Northampton. I have found few traces of his work in Berkshire; he records the discovery of *Lythrum Hyssopifolia* and of *Peucedanum sativum* at Cholsey.

RICHARD WALKER, B.D., F.L.S., author of the *Flora of Oxfordshire*, was WALKER, born at Norwich on March 17, 1791, and was educated at the Free R. School of that city, under Dr. Forster. He was the son of the Rev. John Walker, Minor Canon of Norwich. In 1810 Richard matriculated at Balliol College, Oxford, and in 1812 became Demy of Magdalen College; he took his B.A. degree in 1814, his M.A. degree in 1817, and his B.D. degree in 1824. In 1821 he became a Fellow of his College, of which he was subsequently Dean, Bursar, and Vice-President, and was Master of the Grammar School attached to the College from 1828 to 1844. He was ordained Deacon by Bathurst, Bishop of Norwich, and Priest by Fisher, Bishop of Salisbury. He was for some time Curate of Tilehurst, near Reading. In 1852 he married Eliza Naomi, daughter of David Davies, M.D. He died on December 31, 1870, and was buried at Olveston, near Thornbury in Gloucestershire. His herbarium is said to have been in the possession of his widow, who resided at Bath, but I have been unable to confirm the statement.

The *Flora of Oxfordshire and its contiguous Counties* was published in 1833; it did not add many plants to the existing lists for Oxfordshire or Berkshire, and the comparatively few additions to either county were almost entirely contributed by other botanists, and especially by Mr. Baxter. The *Flora* is arranged according to Linnaeus' artificial classification, and the species are described in plain and easy language, Mr. Walker wishing probably to make a special feature of supplying a book in which the plants of the district should be described, rather

than one in which the distribution of the plants should be traced with some degree of completeness. The information given in describing the habitats of the species appears to have been obtained more from some general flora than from actual observation of the localities. Some of our rarer plants are given as if widely spread and not needing special localization; for instance, *Anthriscus vulgaris* (*Cerfolium Anthriscus*) is placed in the same category as *Ranunculus acris*. The following species, supplied in all cases by the zeal of Mr. Baxter, were published for the first time in Walker's *Flora* as Berkshire plants: *Iris foetidissima*, *Luzula* (*Juncoides*) *congesta*, *Pyrus torminalis*, and *Lactuca virosa*. *Stratiotes Aloides* was inserted on the authority of Mr. Hewlett as growing near Nuneham, but it had possibly been introduced. A considerable number of Berkshire localities are included on the authority of Mr. Baxter, Professor Williams, Mr. Newton Young, a Fellow of New College, and a very few by Mr. Walker himself. *Rubus glandulosus* is inserted on the faith of the note in Smith's *English Flora*, but Walker was unaware that the plant of Smith was not the *R. glandulosus* of Bellardi, but really the *R. Koehleri* of Weihe and Nees.

New
Botanist's
Guide.

WINCH.

The first volume of Mr. HEWETT COTTRELL WATSON's *New Botanist's Guide* was published in 1835. It contained many Berkshire localities which were to a great extent copied from the *Botanist's Guide*. The additions to our flora are few. Mr. N. J. Winch is the authority quoted for *Sagina subulata*, *Narcissus biflorus*, and *Bromus racemosus*, his notes being written in a copy of the *Flora Britannica* now in the possession of the Linnean Society. Mr. Winch was born about 1769 and died at Newcastle-on-Tyne in 1838; in 1807 he published a botanical guide to the counties of Northumberland and Durham. His herbarium of 12,000 plants and his manuscripts were left to the Linnean Society, but were subsequently given by it to the Natural History Society of the above-mentioned counties. There is a portrait of Mr. Winch at Kew. De Candolle named the genus *Winchia* after him.

In the *New Botanist's Guide* Mr. Winch also recorded *Geranium sylvaticum* from meadows above Maidenhead, but this is almost certainly a clerical error for *G. pratense*. In the same work *Rubus suberectus* (*nessensis*) is said, on the authority of the *English Flora*, to grow about Newbury, but no Berkshire locality is given for that plant in Sir James Smith's work. *Calamintha Nepeta* (*C. arcensis*) is cited from the *Botanical Guide* from Wickham, but this possibly means Wycombe in Buckinghamshire. *Orobanchae coerulea* (*O. purpurea*) also is recorded by Mr. Hurst from near Cookham, but it is almost certain that he mistook the purple-coloured form of *O. Trifolium-pratensis* for the *O. purpurea*. *Lonicera Caprifolium* is stated, on the authority of the Rev. W. Bree, to occur, apparently wild, in Bagley Wood. *Silene quinquevulnera* is said to grow in a cornfield at Newbury, on the authority of the *Botanist's Guide*,

but it is not given in that work, and probably the source appealed to should be Mr. Winch's MSS. Since writing the above I have consulted the copy of the *Flora Britannica* referred to, and find that Winch in his MS. notes does not always, or even generally, refer to his own discoveries, the Berkshire notes being chiefly from Mr. Bicheno and Mr. J. Woods (afterwards the author of the *Tourist's Flora*). *Sagina subulata* was recorded by Mr. Woods and Mr. Bicheno, *Narcissus biflorus* and *Silene quinquevulnera* by Mr. Bicheno; *Pyrus Aria* and several other plants, including the erroneous notice of *Geranium sylvaticum*, were observed by Mr. J. Woods. Mr. Bicheno was also credited with two plants, *Rumex maritimus* and *Epilobium roseum*, which Mr. H. C. Watson did not mention, no doubt because he thought they were not correctly named. The notes were principally made about 1802.

The year 1839 was the date of the publication of a work entitled *Russell's The History and Antiquities of Newbury and its Environs*, which contains, on pages 310-340, a list of plants found in the neighbourhood of Newbury. This list was drawn up chiefly by Mrs. ANNA RUSSELL, of Kenilworth, whose maiden name was Worsley; some additions were made to it by Mr. Job Lousley, and the name of Mr. J. Bunny is mentioned in it; it contains about 550 plants, a few of the habitats being in Hampshire. Russell's
Newbury
Catalogue.
RUSSELL.

Mrs. Russell contributed a note to the *Phytologist* (vol. iii. p. 716), in answer to a criticism by Dr. Bromfield (*Phyt.* iii. p. 628) on the Newbury list, in which he drew attention to the doubtful character of some of Mr. Lousley's records. Mrs. Russell says: 'The list was chiefly drawn up by myself at the request of a relation [Dr. Bunny] residing in the place, and with few exceptions comprised only such plants as I had seen with my own eyes, or had his authority for. On receiving a printed copy of the list, I was vexed to perceive that sundry additions had been made to it, for the correctness of which I had no means of vouching, though Mr. Job Lousley, on whose authority they were principally made, is I understand an acute and zealous observer.' Mrs. Russell also contributed a list of plants from the neighbourhood of Bristol to the *New Botanist's Guide*, and she was a valued correspondent of Mr. H. C. Watson, as appears from *Topographical Botany*, 2nd ed. p. 555. Her drawings of Fungi, over 700 in number, are in the British Museum. See *Journ. Bot.* (1877) 32.

Among the errors in the *Newbury Catalogue* are *Salvia pratensis*, a mistake for *S. Verbenaca*, *Polycarpon tetraphyllum*, *Illecebrum verticillatum*, *Allium Schoenoprasum*, *Lathyrus palustris*, *Habenaria albida*, and *Euphorbia platyphylla*, which are undoubtedly mistakes of Mr. Lousley's, and his determinations of *Mentha sylvestris* (*longifolia*), *M. piperita*, and *Gnaphalium* (*Antennaria*) *dioicum* are very probably wrong; they must at all events be verified before the plants can be admitted to the flora. Mrs. Russell was mistaken, as she afterwards found out, in supposing that she had

discovered *Carduus heterophyllus*, the plant which she took for it being *Cnicus pratensis*. Notwithstanding the numerous errors the list is one of considerable importance, since it is very comprehensive and adds more than sixty species to those already recorded for Berkshire. Among these are *Triglochin palustre*, *Catabrosa*, *Juncus obtusiflorus*, *Bidens cernua*, and *Typha latifolia*. *Potamogeton rufescens (alpinus)* from Hampstead Marshall ponds, given by Mrs. Russell, must be verified before the record can be admitted, for at the date when the list was compiled this plant was not very well understood. *Trifolium incarnatum* is another addition of Mrs. Russell's to the Berkshire flora (see the *Phytologist* for 1843, p. 236). Mrs. Russell's *Carex Oederi* was the small form of *C. flava*.

BUNNY.

Dr. JOSEPH BUNNY was born in 1798 at Newbury, where his father and grandfather had been in practice as surgeons since 1766. He was educated in his native town, and after obtaining the degree of Doctor of Medicine from the University of Edinburgh, he practised in Newbury from 1823 to 1882. He prosecuted the study of botany with much industry, took considerable interest in the formation of a local museum, and was Vice-President of the Literary and Scientific Institute. He died in 1885, and was buried in the cemetery at Newbury. Professor Rupert Jones, who was apprenticed to Dr. Bunny, tells me that he cultivated his taste for natural history to a considerable extent. He was much respected for his charity and kindness.

LOUSLEY.

Mr. JOB LOUSLEY was the eldest son of Joseph Lousley, Esq., of Moreton House, where he was born on November 20, 1790. His forefathers had owned land in Berkshire for seven centuries. He resided for many years at Hampstead Norris, a property which had come into his possession. He was a great friend of Dr. Bunny's, and with him explored the interesting district round his house, his own large woods, Beech Wood, Laycroft, and Park Woods, affording very favourable opportunities for botanical research. He took a considerable part in the management of local matters, and a warm interest in politics. He was invited on two occasions to stand for his county in the Conservative interest. In 1852 he compiled a small glossary of provincial words used in Berkshire. His son, Lieut.-Col. B. Lousley, the well-known authority on county tokens, who superintended the second and enlarged edition of the *Provincialisms of Berkshire*, tells me that his father accumulated a library of more than 70,000 volumes, that he supplied Mr. Hewett, jun., with much of the information for his work on the history and antiquities of the Hundred of Compton, and that for upwards of twenty years he contributed a monthly agricultural report to *Bell's Weekly Messenger*. He died on July 8, 1855, at Hampstead Norris, where there is a monument to his memory.

Mr. Lousley contributed many plant-localities to the Newbury list, and some to Hewett's work. Among the additions to the flora of

Berkshire are *Prunus insititia*, *Pyrus communis*, *Epilobium parviflorum*, *Hordeum murinum*, *Onopordon Acanthium*, *Petasites vulgaris*, *Urtica urens*, *Scolopendrium vulgare*, and *Equisetum limosum*.

In the year 1843 Mr. G. G. MILL, son of James Mill, the author of the *MILL, G. G. History of British India*, and brother of John Stuart Mill, visited Great Marlow and made notes of the plants which he found growing round that town, and published the list in the same year in the *Phytologist* (old series, vol. i. pp. 783-995). As Marlow is on the Buckinghamshire side of the river, and the country examined by Mr. Mill was partly in Buckinghamshire and partly in Berkshire, it is not easy to say whether plants which—like *Anthriscus vulgaris* for example—have no localities specified are to be found in both counties, or not; but the list is one of the most valuable to be found as yet in our *Botanologia*, whether we consider the large number of plants (389) enumerated, or its accuracy and the general correctness of the names of the species which it contains. Many of the localities given are in Buckinghamshire, but the Berkshire ones are numerous and interesting. More than eighteen species are additions to the Berkshire flora, among them *Myriophyllum spicatum*, *Crepis foetida*, *Luzula (Juncoides) pilosa*, *Koeleria cristata*, *Epipactis purpurata* (*E. violacea*), *Caucalis nodosa*, all with localities; and confirmatory notice is given of *Calamintha officinalis (montana)*. The additions with no localities specified are *Ranunculus auricomus*, *Papaver dubium*, *Anthriscus vulgaris (Cerefolium Anthriscus)*, *Erigeron acre*, and *Carex paludosa (acutiformis)*. The records of *Polygala vulgaris*, *Epilobium tetragonum*, and some other species are intended, no doubt, in the aggregate sense; the *Epilobium* was probably *E. obscurum*. The list also puts on firm ground many plants only reported before in general terms or on weak evidence.

In 1845 a Guide to Reading was published under the title of 'J. C. Robertson's *Environs of Reading*.' This work contains a list of some of the more interesting plants indigenous to the vicinity of Reading contributed by Mr. T. BRUGES FLOWER. About 200 species are inserted, FLOWER, but no localities are given; and, as Reading is close to Oxfordshire, it T. B. by no means follows that all of the plants were observed in Berkshire, nor are we told that the author had himself seen all the plants that he enumerates, so that some of the records may be old ones on more or less trustworthy authority. My efforts to elicit further information from Mr. Flower, who is still living in Bath, have not been marked with success. His work on the *Flora of Wilshire* has appeared in the pages of the *Wills Magazine*, and he was a correspondent of Mr. H. C. Watson's, contributing notes on the botany of several counties to *Topographical Botany*. The list of plants growing round Reading contains seven species not previously published as belonging to Berkshire. The first, which can scarcely be described as 'indigenous to the environs of Reading,' is the not infrequent garden escape or casual, *Papaver*

somniferum, also found by Mr. Hewett near Ilsley. The second is *Polygala amara*, which meant *P. calcarea*. *Valeriana dentata* is, of course, our *Valerianella dentata*. The other additions are *Sonchus asper*, *Asplenium Adiantum-nigrum*, *Lastrea (Dryopteris) Filix-mas*, and *Polystichum aculeatum*. Mr. Flower also gives *Thlaspi perfoliatum*, which is doubtless an error for *T. arvense*, and his *Diplotaxis muralis* is probably *D. tenuifolia*, which he does not mention, though it is so common on the Abbey walls. His *Aceras anthropophora* is also erroneous, *Habenaria viridis* having most probably been mistaken for it.

BABING-
TON.

Professor C. CARDALE BABINGTON, F.R.S., Professor of Botany in the University of Cambridge, and author of the *Manual of British Botany*, recorded the occurrence of *Atriplex deltoidea* near Maidenhead in the *Trans. Bot. Soc. Edin.* (1840) 13, and of *Ranunculus heterophyllus* in the *Annals of Natural History*, ii. 16, 393, 1855. He also says he found *Pyrus scandica* about Pangbourn and Silchester, but Dr. Boswell Syme, in *Eng. Bot.* vol. iii. 246, says that he was unable to find it about Pangbourn. In the *British Rubi* of 1869 he mentions that *Rubus suberectus* (*nessensis*) and *R. Balfourianus* occur in Berkshire.

HEWETT.

In 1844, Mr. HEWETT, a surgeon of East Ilsley, published a small volume entitled *The History of the Hundred of Compton*. In addition to historical and archaeological matter this work contains a short list of plants observed by Messrs. Hewett, senior and junior, and Mr. Job Lousley, which includes a record of *Papaver somniferum* from East Ilsley.

Mr. Hewett's son, in 1840, when he was eighteen years of age, put together a work, still in manuscript and contained in the Natural History Department of the British Museum, which was accompanied with coloured figures and entitled 'An account of the Orchideous plants found in the neighbourhood of East Ilsley, by W. Hewett, junior.' About fourteen plants are figured, and one of them, labelled *Satyrrium albidum*, explains the record for that species by Mr. Job Lousley in the Newbury list. The plant, as might be expected, is not *Habenaria albida*, but a small pale-flowered form of *H. conopsea*. The figure of *H. bifolia* would appear to have been made from the true *H. bifolia*. The other drawings need no further comment.

PAMPLIN.

Mr. WILLIAM PAMPLIN is a well-known botanist, whose labours have been recognized by his election as an Associate of the Linnean Society. He was a great friend and frequent correspondent of Mr. Baxter's, and I have to thank him for several notes on the botany of Oxfordshire and Berkshire. In the *Phytologist* for 1854, p. 153, he published a list of plants occurring in the neighbourhood of Streatley and Goring. This, like several previous lists, is an enumeration of plants gathered on the borders of two counties, and we are not sure in every case that the plant really occurred in Berkshire. Mr. Pamplin says of the district that 'it is the head-quarters of *Anemone Pulsatilla*,

now [April 21] in full bloom.' *Anemone Pulsatilla* is not found on the Oxfordshire side of the Thames. *Cineraria (Senecio) campestris*, which is restricted to Berkshire in the district in question, occurs in the list with *Orchis ustulata*, *O. militaris*, *O. tephrosanthos* (Simia), *Iberis amara*, *Linaria repens*, and ' *Veronica Buxbaumii* [Tournefortii], a beautiful large-flowered species very abundant and ornamental in corn and turnip fields.' Mr. Pamplin notes that the chalk hills are studded with juniper and yew; and that he once saw a steep chalk bank, on which a great number of *Orchis militaris* and *O. tephrosanthos* once grew, being stubbed up and burnt for manure, the orchids being roasted and burnt alive. In Mr. Pamplin's list 257 species and five varieties are enumerated, of which *Rumex pulcher*, *Trifolium fragiferum*, and *Petroselinum sativum* (*Carum Petroselinum*) are recorded for the first time as Berkshire plants, the last, however, being only a garden straggler. Several interesting plants are included in the list, but with them are also a considerable number that are wrongly named. Among the errors are — ' *Cardamine impatiens*,' by which some form of *C. flexuosa* was probably meant; ' *Viola Curtisii* ' is a mistake for the large-flowered form of *V. tricolor*; ' *Sedum Forsteri* ' was most likely a form of *S. reflexum*; ' *Myosotis sylvatica* ' was *M. scorpioides*, var. *umbrosa*; ' *Aceras anthropophora* ' was *Habenaria viridis*; ' *Cephalanthera ensifolia* ' was probably a form of *C. pallens*. Considerable doubt attaches also to the records of ' *Trifolium subterraneum*,' ' *Carduus tenuiflorus*,' and some others. ' *Lamium purpureum*, var. *incisum*,' was probably the var. *decipiens*, and the Oxfordshire ' *Pyrola media* ' was *P. minor*.

In conjunction with Mr. ALEXANDER IRVINE, the author of the *London Flora*, Mr. Pamplin has given an account, published in the *Phytologist* for 1857-8, p. 338, of a visit paid to Caversham and of the plants observed there, but none of these were additions to the flora of the county. In 1842 he sent to Mr. Luxford specimens of a gentian from Streatley, which the latter reported upon in the *Phytologist* of 1842, p. 381, and identified with *Gentiana germanica* of Willdenow. At that time the specific difference between that species and *G. Amarella* was not very well understood, great stress being laid on the capsule being sessile or more or less stipitate. Mr. Luxford gave it as his opinion that *G. germanica* is not specifically distinct from *G. Amarella*, but I have some doubt whether the plant which he had before him from Streatley was true *germanica*; neither I nor any other botanist have ever seen it growing there, and the large form of *G. Amarella*, which has been more than once mistaken for *G. germanica*, does grow at Streatley.

A few Berkshire localities are given in Irvine's *London Flora*, but no additions to the county are made in it.

CHARLES GILES BRIDLE DAUBENY was born at the Rectory, Stratton, DAUBENY, Gloucestershire, on Feb. 11, 1795. He was educated at Winchester

School and Magdalen College, Oxford, and took his B.A. degree in 1814. In 1822 he was appointed Professor of Chemistry, and in 1834 Professor of Botany in the University of Oxford, where he was subsequently made Professor of Rural Economy. He died on Dec. 13, 1867, in the seventy-third year of his age. There is an oil portrait of him in the Library of the Botanic Garden at Oxford. Lindley's genus *Daubenya* commemorates him.

Dr. Daubeney took little interest in field botany, but during one of his visits to the Continent he collected in Spain a few plants, which are now in the herbarium of the Botanic Garden at Oxford. The only addition which he made to the flora of Berkshire is *Hypericum calycinum*, noticed by him about 1840. A memoir of him will be found in the *Proceedings of the Royal Society*, vol. xvii. pp. 74-80.

JONES, RUPERT. Professor RUPERT JONES, F.R.S., the well-known geologist, who lived for some years at Newbury, has kindly lent me an interesting description of Greenham Common, which he wrote in 1845, and in which he mentions some thirty plants; but all have been previously recorded.

STOWELL, H. In the *Phytologist* for 1856 (p. 334), Mr. H. STOWELL recorded the occurrence of *Draba inflata* near Reading 'Castle.' The locality was probably near the Abbey, and the plant was a form of *Erophila praecox*, not the true *Draba inflata*.

WILKIN, H. In the same journal for 1857-8, on p. 172, in an account of a visit to Ascot, Mr. H. WILKIN gave the names of sixteen plants which he noticed there, and one of these, *Corydalis (Capnoides) claviculata*, was new to the county. The *Potamogeton natans* and *Habenaria bifolia* of this list were probably *Potamogeton polygonifolius* and *Habenaria chloroleuca*.

REEKS. Mr. HENRY REEKS was born at Standen, near Hungerford, on March 15, 1838, but during the greater part of his life he resided at the Manor House at Thruxton, near Andover, and died there on February 20, 1882.

In the year 1866 he went to Newfoundland to study its birds, but was so severely frost-bitten at a great distance from surgical aid, that he had the courage to amputate his own toes, and so preserve the remainder of his feet.

A paper containing a list of the flowering plants of Newfoundland, compiled during his visit to that country, was read before the Linnean Society, of which he was a member, in 1869, and a notice of the more remarkable of them appeared in the *Journal of Botany* for 1871, page 16. He contributed to the same journal a note on the occurrence of *Falcaria Rivini* in Hampshire, and catalogued the flowering plants, ferns, and mosses observed in the parish of East Woodhay in Hampshire. To Mr. Britten's *Contributions* Mr. Reeks supplied a large number of plant localities, principally from the neighbourhood of Kintbury.

He is apparently the first who recorded *Arabis hirsuta*, *Prunus Cerasus* (he also mentions *P. Avium*), and *Orobanche (major) elatior*. He also recorded *Hieracium murorum*, which, however, was almost certainly only *H. sciaphilum*, and *Rubia peregrina*, a most interesting discovery if correct, but which is improbable, and must be queried till verified. He was also a conjoint discoverer of *Cuscuta Trifolii* and *Viola Reichenbachiana* in Berkshire, and he contributed to the *Journal of the Linnean Society* for 1871 (p. 65) a paper on the forms of *Aspidium (Polystichum) angulare* and *A. aculeatum* observed at East Woodhay.

MR. HEWETT COTTRELL WATSON, whose name has been already mentioned in our *Botanologia*, was born in 1804 at Firbeck in Yorkshire. H. C. His taste for botany was encouraged, if not originally excited, by Dr. Stanley, afterwards Bishop of Norwich; the bishop's son, who was a younger schoolfellow of Watson's and had benefited by his protection, was Arthur Penrhyn Stanley, Dean of Westminster. Watson was intended for the army, but an accident at cricket caused a permanent injury to his knee, and disqualified him for the profession of arms; he then studied medicine, but never qualified, as his health broke down on the eve of his examination for his degree. He travelled for some time in 1835, and then purchased a house at Thames Ditton, where he spent the remainder of his life, engaged in botanical work. All the chief botanical publications bear traces of his industry. In 1835 he published the first volume of his *New Botanist's Guide*, the second volume appearing in 1837. The first volume of his *magnum opus*, the *Cybele Britannica*, was published in 1847, the second in 1849, the third in 1852, and the fourth in 1859. Several references to the plants of Berkshire, among them the first notice of *Saponaria Vaccaria*, may be found in the pages of this classic work. A supplement to the *Cybele* was issued in 1860. The three volumes of the *Compendium to the Cybele Britannica*, published 1868-1870, contain a mass of additional information obtained after the publication of the *Cybele*. In the volume of 1870 *Enarthrocarpus lyratus*, D.C., and *Chenopodium Botrys*, L., two casuals, are reported from Windsor and Bray respectively. The *Topographical Botany*, published in 1873-4, exhibits in tabular form the distribution of plants through the 112 counties and vice-counties of Britain, and to this work many references are made in this *Flora*, the second edition (1883) being quoted under each indigenous species. Mr. Watson also edited several of the re-issues of the *London Catalogue of British Plants*. His various works show what an extensive knowledge he possessed of British botany, and his remarks on some of his contemporaries are somewhat incisive and unsparing; he said in after-life of some utterances of his: 'They read too hard; it is a terrible thing to have the bump of destructiveness highly developed.' But my remembrances of him are of a most kindly character, and his letters

were always greatly valued for the information they contained. A selection of his letters to various correspondents will, it is to be hoped, some day see the light; it would be interesting and valuable. Mr. Watson died on July 27, 1881, in the seventy-eighth year of his age, and was buried in the churchyard of Thames Ditton.

Mr. Watson's herbarium is at Kew; many of his manuscripts are preserved in the Botanical Department of the British Museum. An excellent memoir of him, with a photograph appended, from the pen of Mr. J. G. Baker, appeared in the *Journal of Botany* for September, 1881. His name is commemorated in *Erica Watsoni*, *Eleocharis Watsoni*, and some other plants. He discovered *Ranunculus tripartitus* in England. Unfortunately, he did not botanize much in Berkshire, but in the report of the *Botanical Exchange Club* for 1867 he records *Ranunculus Lenormandi* and *Vio'a lactea*, both of which are additions to the county. In Mr. Britten's *Contributions*, to which Mr. Watson supplied a list of plants observed by him in the Streatley, Bagshot, and Wokingham districts, we find the further additions of *Sagina ciliata*, *Arenaria tenuifolia* (see Herb. Bicheno), *Trifolium hybridum*, *Epilobium obscurum* (which was probably Mill's plant from Bisham Wood, which he thought was *E. tetragonum*), *Callitriche platycarpa*, *Hieracium tridentatum* (*H. rigidum*, var.), *Potamogeton polygonifolius*, *Atriplex hastata*, *A. erecta*, *Alopecurus fulvus*, *Cardamine flexuosa*, *Camelina sativa*, and *Galeopsis Tetrakit*, var. *bifida*. Watson was also the contemporaneous recorder of *Cerastium semidecandrum*, *Glyceria* (*Panicularia*) *plicata*, *Chenopodium polyspermum*, and *Silene anglica*, and was the first to put on undoubted evidence the occurrence of *Myosotis repens* and *Pyro'a minor* in Berkshire.

NEW-
BOULD.

My lamented friend, the Rev. WILLIAM WILLIAMSON NEWBOULD, M.A., F.L.S., was born at Sheffield in 1819. He was educated at Trinity College, Cambridge, where he was a pupil of Professor Henslow, and made the acquaintance of Mr. C. C. Babington, to whom he soon proved a most earnest and active assistant in the preparation of the *Flora of Cambridgeshire*. He took his B.A. degree in 1842, his M.A. degree in 1845, was ordained Deacon in 1844 and Priest in 1845, and for some time held the curacy of Bluntisham in Huntingdon, and subsequently that of Comberton in Cambridgeshire. The pages of *Topographical Botany* show many traces of his work for several English counties. His extreme modesty and an apparent dislike to publicity prevented his making known the great mass of information which he possessed respecting our British plants. In 1846 he added *Ranunculus Drouetii*, in 1848 *Sagina ciliata*, *Apera interrupta*, *Melilotus arvensis*, and *Orobanche Picridis* to the British flora. In 1848 he visited Jersey and there discovered *Agrimonia odorata*, and also accompanied Babington into Pembrokeshire. In conjunction with Mr. J. G. Baker he brought out the second edition of *Topographical Botany*. To Mr.

Britten's *Contributions* he supplied many notes on the plants about Streatley and Pangbourn, and was the first recorder of *Ranunculus trichophyllus* and *Bartsia Odontites*, var. *serotina*; he verified the occurrence of *Galium tricornis*, and recorded the discovery of *Atriplex angustifolia* in Berkshire. Dr. Seemann named the beautiful Bignoniaceous genus *Newbouldia*, and Babington a bramble *Rubus Newbouldii* after him.

A most interesting and appreciative memoir of Mr. Newbould, by Mr. Britten, will be found in the *Journal of Botany*, 1886, pp. 161-174, accompanied by a photograph. The following cameo sketch of him was written by one who knew him intimately and loved him well: 'No one who has been at all a frequent habitué of the Reading-room of the British Museum can easily help missing that slight, bent figure, frail to attenuation with hardness of study and poverty of living; the bald head, with its scanty fringe of hair grizzled like the beard which all but hid the nervous sensitive mouth, the wide benevolent forehead, the ragged penthouse brows shading eyes sometimes almost uncanny in their brightness, sometimes beaming with simple childlike pleasure—the pleasure perhaps of knowing that he had in his pocket some rare volume picked up at a second-hand bookstall for the friend to whom he was talking—sometimes pathetic with an almost wistful appeal for sympathy and indulgence with one who never failed to give of both to all who came in contact with him; the nervous hands pointed at the tips for handling specimens, dusky with the dust of rarely-opened books; the thin aquiline nose, bowed shoulders, and quick yet shuffling step; the rusty tie, worn felt hat, and shabby ill-cut clothes, powdered with dirt of museums, shiny with friction of desks, piteous often in their lack of a woman's hand to keep them neat or mended, their palpable insufficiency to meet the severities of wind or weather to which he was so constantly exposed, yet never, through all their dinginess and poverty, lacking that impalpable something, that unconscious indestructible stamp of refinement, of gentle birth and gentle culture, which was one of the most delicately marked characteristics of the man, whose absolute humility, whose absence of every vestige of pretension, was his most striking virtue. . . . We workers in the world where he worked for others always, for himself never, forget many things and forget them easily; but those who have grown familiar with the picture thus recalled, who look for it in vain in the place where we have so long known it, will scarcely do so without a sigh, without a loving reverent remembrance of William Newbould.' I well remember my first introduction to the subject of this notice, and the pleasant walk I took with him to see *Rumex palustris* and *R. sylvestris* by the Thames in Surrey, and the great kindness he showed me, and the great encouragement he gave me, then and on many subsequent occasions. He appeared as delighted at the preparation of

the *Flora of Oxfordshire* as if it had been his own undertaking, his own notes being freely laid under contribution, and his copy of Sibthorp's *Flora* pressed upon me with a generosity that would have no refusal. The idea of compiling the present volume may be said to have been fostered, if not started by him. Other acts of kindness rise to the memory as these lines are written—his keen sympathy, for example, on an occasion when he thought that I had been rather unfairly treated, and characteristically blamed the act of unkindness while trying to find excuses for the offender. He said, in dismissing the subject: 'Ah! it is like the smell of a smoky room, let us get into fresh air,' and then tried to show me, I am afraid not quite successfully, the specific difference between *Alisma Plantago-aquatica* and *A. lanceolatum*. These are memories which even time does not destroy, and the thin, pale, intellectual face is before me as I write these lines.

Mr. Newbould died after a pulmonary attack on April 16, 1886, and was buried in Fulham Cemetery. Professor Babington wrote a short but most feeling tribute to his memory in the *Journal of Botany* (p. 159) of the same year. He says: 'Mr. Newbould was my oldest intimate friend, one for whom I had the highest esteem, one whom I could thoroughly trust, and who would have done anything in his power for me. Indeed it was unsafe to express any wish or want in his presence, for fear that he should start immediately to supply it. . . . His knowledge of British Botany may be said to have been unrivalled, and yet he is unknown to the public. . . . All his knowledge of science was used for the help of scientific workers, never for his own credit or reputation. . . . I cannot conclude better than by quoting a characteristic remark which fell from his lips the 17th of September last: "The longer I live the more I feel that I must sum up all my prayer in the Lord's prayer, and even more than all in that one clause of it, 'Thy will be done.'"'

Mr. Newbould's manuscripts are preserved in the Botanical Department of the British Museum. He once told me he would have made Oxford his residence, but that the shaky ladder, which was at that time the only means of access to the Fielding and Sherardian herbaria, was too much for his nerves.

TRIMEN.

DR. HENRY B. TRIMEN, Director of the Botanic Garden at Peradeniya, Ceylon, the author, in conjunction with Mr. W. T. Dyer, of the excellent *Flora of Middlesex*, written when he was connected with the Botanical Department of the British Museum, visited Berkshire and furnished some notes to the *Contributions*. He added *Isatis tinctoria* to the county flora, the latter plant being a relic of the ancient cultivation of the Woad plant about Wantage. He was also a contemporary finder of *Chenopodium polyspermum*, and gathered on the chalk downs a form of *Cerastium vulgatum*, which he thought was near

holosteoides; but I see no resemblance to the plant so named by Fries. He also found on the White Horse downs a form of *Gentiana*, which he at first thought might be *G. campestris*, but was inclined afterwards to put under *G. germanica*: the plant is, I think, distinct from both. Dr. Trimen's herbarium of British plants is now incorporated in that of the British Museum. Dr. Trimen's premature death occurred in 1896. See the memoir in *Journ. Bot.* (1896) 489.

MR. J. COSMO MELVILL, the author of a *Flora of Harrow*, contributed MELVILL. a considerable number of notes of plants observed in the neighbourhood of Wargrave to Mr. Britten's list. We owe to him the following additions to our county flora: *Filago apiculata*, *Barbarea praecox*, *Rubus villicaulis*, *R. 'rudis'* (*R. echinatus*), *R. Koehleri*, var. *pallidus*; and to him, conjointly with other observers, *Melilotus arvensis*, *Ranunculus trichophyllus*, and *Delphinium Ajacis*. From his MSS. kindly lent me recently I also find that he discovered *Carex elongata*.

MARMADUKE ALEXANDER LAWSON, formerly Professor of Botany in LAWSON, the University of Oxford, was born at Seaton Carew, in co. Durham, M. A. on Jan. 20, 1840; he took his M.A. from Trinity College, Cambridge, in 1864, and was appointed to the Professorship at Oxford in 1868. At this time he took some interest in British plants, and in conjunction with the Rev. H. G. Fox made a list of the Plants of Skye (see *Journ. Bot.* (1869) 108-114). He also enumerated the Mosses collected by Robert Brown (Campst.) in Greenland in *Trans. Bot. Soc. Edinb.* ix. 452. He monographed the *Combretaceae* and *Myrtaceae* from the *Flora of Tropical Africa*, ii. 413-439 (1871), and also two or three of the orders for the *Flora of British India*, i. 607-668 (1875). He compiled a MS. index to *Jaeger's Adumbratio*, which is now in the Botanic Garden Library. His flowering plants, chiefly from Durham and Skye, are also in the Oxford Herbarium, but his knowledge of the British plants was not very thorough, and he gradually lost his interest in the subject. Our Oxford climate never seemed to suit him, and he took advantage of the opportunity which was offered him of becoming Director of the Botanical Department, Ootacamund, where he formed a considerable herbarium, and interested himself in establishing a system by which quinine could be sold at a very cheap rate in the villages. He was about to visit England when he was seized with hepatic disease, from which he died at Madras, on Feb. 14, 1896. In 1871 he recorded in the *Journal of Botany*, p. 16, the occurrence of *Potamogeton (compressum) zosterifolius* in the Thames, near Oxford. This is probably the *P. compressum* found near Caversham by Milne and Gordon, and noticed by them in the pages of *Indigenous Botany*.

MR. W. THISELTON DYER, the present Director of Kew Gardens, DYER, graduated from Christ Church, Oxford. When in residence at Oxford THISELTON. he paid some attention to the local flora, as may be seen from the

records of plants which he sent to the Botanical Exchange Club in 1867, namely *Sisymbrium Sophia* from Botley, 'in Berkshire,' and *Mentha piperita* and *Rumex pratensis* (*R. acutus*) from Boar's Hill, in the same county, these being claimed as additions to the sub-province of West Thames, No. 9 of the *Cybele Britannica*. Probably *Sisymbrium Sophia* was found in Oxfordshire, not in Berkshire; it had already been recorded on good authority from the province; the name also of *Mentha piperita* was given by Dr. Mavor, and *Rumex pratensis* (*acutus*) included in two previous lists. As these records are very doubtful, since the mints and docks were not well understood by the local botanists, Mr. Dyer may be considered to be the first who published them as undoubted records for the county. In the *Journal of Botany* for 1871 (p. 145) Mr. Dyer published a paper on the plants of the neighbourhood of Oxford, in which *Ranunculus pseudo-fluitans*, Bab. and *Sedum dasyphyllum* are given as additions to Berkshire, and *Ranunculus Drouetii* (the plant probably referred to by Merrett) is put definitely on record. To Mr. Britten's *Contributions* Mr. Dyer supplied *Rubus idaeus*, var. *Leesii* (*anomalus*), *Barbarea vulgaris*, var. *divaricata*, *Rosa canina*, vars. *tomentella*, *urbica*, and *dumalis*, and *Scirpus* (*Elocharis*) *uniglumis*. Papers by Mr. Dyer also appeared in the *Phytologist* of 1861 and 1863, which contained some Berkshire records.

BRITTEN.

Mr. JAMES BRITTEN, of the Botanical Department of the British Museum, published in the *Journal of the Newbury District Field Club* for 1871 his *Contributions to a Flora of Berkshire*. In this excellent and concise publication Mr. Britten brought together much information which, he says, 'was scattered through botanical works, together with such lists as I could obtain from other sources, and the result will, I hope, be found to be that though one or two less generally known books may have been overlooked, most of our better known authorities, from Gerard downwards, have contributed their quota to the following pages. By the assistance of manuscript lists from living botanists I have been enabled to add many species to the flora of the county which were previously unrecorded, so that the present enumeration may be looked upon as a record of the plants known to exist in Berkshire in or previously to the year 1871.' In order to show plant-distribution through the county, Mr. Britten has divided it into five artificial districts, and the occurrence of each plant, as far as it was then known, is shown in tabular form. It will be noticed that I have departed from Mr. Britten's arrangement, in order to base the districts on the river-drainage; but I am not quite convinced of the superiority of this plan when it is used for so small an area as is comprised in the county of Berkshire, especially when this happens to be all in the basin of one river-drainage, and when too I have not been quite consistent in carrying it out. Mr. Britten mentions the

principal works from which he has quoted; these are *The Botanist's Guide*, *The New Botanist's Guide*, *The Phytologist*, Hewett's *Hundred of Compton*, Robertson's *Environs of Reading*, Mrs. Russell's *Newbury Catalogue*, Baxter's *Phaenogamous Botany*, Walker's *Flora of Oxfordshire*, *Flora Wellingtonensis*, and the herbaria of Messrs. Rudge and Stubbs. In the tabular list of Berkshire plants Mr. Britten enumerates over 800 species. The subsequent fourteen pages are devoted to giving detailed localities of the more interesting plants, of which a few segregate species are additions to those given in the tabular list.

From the above number must be deducted a few species which have been inserted on authority which has proved unreliable; for instance, *Limosella aquatica*, *Carum Carui*, and *Stachys germanica*, obtained from Oxfordshire, and *Chrysosplenium alternifolium*, and probably *Asarum europaeum* from Buckinghamshire localities; while *Lathyrus palustris*, *Orobanche caerulea* (purpurea), *Gnaphalium* (*Antennaria*) *dioicum*, *Salvia pratensis*, and *Mentha sylvestris* rest on very dubious authority. *Rubus glandulosus* and *Hieracium sylvaticum* are probably synonymous with *Rubus Koehleri* and *Hieracium sciaphilum*. In the detailed list sixty-seven species are claimed to be published additions to the flora of Berkshire; of these, however, twenty-two had been already published. Of the remaining forty-five, *Delphinium Ajacis*, *Silene conica*, *Isatis tinctoria*, *Camelina sativa*, and *Barbarea praecox* are of casual occurrence. So much doubt is attached to the naming of *Rubia peregrina*, *Hieracium murorum*, *Potamogeton rufescens* (alpinus), *P. heterophyllus* (gramineum), and *Linum angustifolium*, that they had better be removed from the list. But *Potamogeton crispum*, *Lemna gibba*, *L. trisulca*, *Scirpus fluitans*, *Festuca sciuroides*, *Avena pratensis*, *Poa compressa*, *Nitella flexilis*, which should probably be *N. opaca*, and *Agrostis canina*, plants supplied chiefly from Mr. Boswell's notes, are, I believe, published for the first time in Mr. Britten's tabular list as Berkshire plants. Among Mr. Britten's helpers were some of the leading botanists, the Rev. W. W. Newbould, the Rev. C. W. Penny, Mr. W. Thiselton Dyer, Dr. Trimen, Messrs. H. C. Watson, J. C. Melvill, and H. Reeks. Their principal discoveries will be found under their respective names.

Mr. Britten's list had the unquestionable merit of bringing order out of chaos, and for the first time in the history of the county the salient features of its flora were brought into the compass of a single work under a consistent systematic arrangement. In the *Journal of Botany*, of which Mr. Britten is now the editor, in the volume for 1873, pp. 133-140, he gives some additional localities, obtained chiefly from the herbarium of the British Museum; these have been mentioned already under the names of the respective observers—Mr. Rudge, Mr. Foster, and Sir Joseph Banks. The new plants noticed are *Doronicum plantagineum* and *Ulex Gallii* from the herbaria of Rudge and Banks,

and *Oenanthe Lachenalii*, found by Mr. Walker near Marcham. The specimen of *Ulex Gallii* is probably only a larger form of *U. minor*.

In later numbers of the same journal the Messrs. GROVES have recorded in their papers on the British Characeae the occurrence in Berkshire of *Nitella opaca* on the authority of Mr. W. P. Hiern, and my own discoveries of *Chara vulgaris*, var. *papillata*, *C. contraria*, *Nitella translucens*, and some other species.

WALKER.
F.

Mr. FREDERICK WALKER was born Dec. 4, 1829. He was the third son of Mr. Isaac Walker, of Arno's Grove, Southgate, Middlesex. He was educated at Stanmore, and was a pupil of the late Dean of Lincoln when Vicar of Wantage. He afterwards went to Trinity College, Cambridge, where he played for the University Cricket Eleven four consecutive years. He resided for some years at Oakley House, near Abingdon, and whilst there discovered *Scirpus maritimus* at Marcham, and *Oenanthe Lachenalii*. Although debarred from taking walking exercise, he made a list of nearly 500 plants growing in the parishes of Marcham, Tubney, and Abingdon, which included *Erigeron canadense* as an addition to the county; for the perusal of this list the author is indebted to his sister, the wife of Admiral Bradshaw, of Steeple Aston Grange. He had a garden of interesting plants. Succeeding to family property, he left Oakley House for Arno's Grove, where he died Dec. 20, 1889.

PENNY,
C. W.

The Rev. C. W. PENNY, of Wokingham, was formerly President of the Wellington College Natural History Society, and endeavoured to inculcate a love of Natural Science in the pupils of the College; to him principally was due the establishment of the *Wellington College Natural History Journal*, and the preparation of a botanical list called *Flora Wellingtonensis*, issued in 1868. This list contained *Corydalis* (*Cupnoides*) *claviculata* and *Habenaria chlorantha* (*chloroleuca*), recorded as new by C. Teesdale, but both of them previously observed, and one new plant, *Comarum palustre* (*Potentilla palustris*). Some plants were wrongly named—*Cicuta virosa*, *Crepis paludosa*, *Euphorbia platyphylla*, *Lepidium Smithii*, and *Linum angustifolium*. The second annual report for 1869–70 was published in 1871. This gave two additions to our flora recorded by Mr. Penny, *Lotus tenuis* and *Ornithogalum umbellatum*, and confirmatory observations of *Myosotis collina*; one of the boys found *Veronica spicata* (a garden outcast). The list for 1872 was compiled by Mr. Penny and was a marked improvement on the preceding ones, the localities of the more interesting species being given, while many of the errors of former lists were omitted; it contained two new varieties and one new casual, *Silene nutans*. The list for 1872–3 appeared in 1874, and contained five additional plants, all casuals, *Melilotus alba* and *Lepidium sativum* found by A. Grey, *Tragopogon porrifolium* and *Carduus 'setaeus'* (*Cnicus setosus*) by the Presi-

dent, and *Sisyrinchium Bermudiana* by E. Willett, the son of my revered friend, Mr. H. Willett of Brighton. *Galium erectum*, *Rosa spinosissima*, *Orobanche Hederae*, *Carex fliformis*, and *Sclerochloa distans* of the list are either wrongly named or are not Berkshire plants; it must be borne in mind that very many of the localities in these lists are in Hampshire, and a few in Surrey. Many of the plants mentioned in the above lists are preserved in the College herbarium, of which Mr. Edgar Willett (now a well-known London surgeon) was once the keeper.

Mr. Penny was a valued correspondent of Mr. Britten's, and the Wellington lists were freely quoted in the *Contributions*. We owe to Mr. Penny precise localities for *Silene anglica*, *Pulicaria vulgaris*, *Ranunculus hirsutus* (*R. sardous*), and *Botrychium Lunaria*, which had been previously recorded on old or not very satisfactory authority; he also found *Alyssum incanum* (a casual), and has sent me many notes on the flora of the neighbourhood of Wellington and Wokingham.

Mr. HENRY BOSWELL, of Oxford, the eminent bryologist, contributed Boswell, to the *Phytologist* for 1860 (see p. 99) a paper on the botany of the H. neighbourhood of Oxford. Of the plants he enumerates, *Vicia lathyroides*, *Oenanthe fluviatilis*, and *Viola flavicornis* (*V. canina*) are additions to the flora of Berkshire, while *Rosa villosa*, *R. micrantha*, and *Hieracium vulgatum* (*H. sciaphilum*) are noticed precisely in print for the first time by Mr. Boswell for the same county. He lent very important aid in the preparation of Mr. Britten's *Contributions*, in which he appears as the first to publish *Vicia gracilis*, *Juncus diffusus*, *Lastrea* (*Dryopteris*) *spinulosa*, and *L. Oreopteris* (*Dryopteris montana*); he was also a contemporaneous recorder of *Viola Reichenbachiana*, *Cerastium semidecandrum*, and *Chenopodium polyspermum*, and, as his notes show, the first observer of several unlocalized plants in the *Contributions*. He is reported in that work to have found *Osmunda regalis*, *Potamogeton rufescens*, and *P. heterophyllus* in North Berkshire, but there is no mention of either of these plants in his note-book, and he says that he certainly never saw them in Berkshire. These three plants are therefore not given on Mr. Boswell's authority in the present work. His specimens of *Scirpus setaceus* and *Poa compressa* are the earliest vouchers for these species as Berkshire plants. Mr. H. Boswell was born at Oxford, of an old city family, on Jan. 27, 1837. From his boyish days he was fond of flowers. At the age of twenty-five he succeeded, on the death of his father, to the old-established business of portmanteau-maker in the Cornmarket, which he carried on till the end of 1895. His chief botanical field-work was done in the fifties, at which time he became well acquainted with the botany of the district. His first published paper with which I am acquainted is the one alluded to above, which appeared in the *Phytologist* for 1860. In conjunction with Prof. Lawson

and Mr. H. E. Garnsey, Mr. Boswell worked with much assiduity at the Moss Herbarium in the Botanic Garden. He arranged the plants with characteristic neatness, and enriched the collection with many of his own specimens. His services to the Herbarium were acknowledged in the Curators' report for 1883. In 1887 he received the high distinction of being made a Master of Arts, *honoris causa*, by the University of Oxford. He had an extensive correspondence among British botanists, and was in communication with Geheeb and Schimper. Some of his letters (he was an excellent letter-writer) to Wilson, the author of the *Bryologia Britannica*, are preserved in the Wilson Correspondence in the British Museum. His time was largely occupied in examining specimens which his numerous correspondents sent him from time to time, and from almost all parts of the globe; thus his herbarium became replete with specimens of great interest, and the species are amply and excellently represented.

Mr. Boswell had no sympathy with the maker of micro-species, and the unconditional surrender of Braithwaite to Ludberg's nomenclature rather prejudiced him against the law of priority, but I do not say he might not in time have been converted to its use. He was well read in general literature and especially fond of astronomy. After the death of his wife in 1888 he became of more sedentary habits, and he gave up the moss-hunting expeditions of which in earlier life he had been so fond. In 1894 it became evident that general paralysis had asserted itself. From this time his faculties gradually failed, and he passed away on Feb. 4, 1897. He was buried in the Cemetery of St. Sepulchre at Oxford. His herbarium of Mosses and Flowering Plants became the property of the Oxford Botanic Garden, while his library was purchased by the author¹.

Mr. Boswell's more important papers are as follow:—*On the Bryology of the Neighbourhood of Oxford*, Phytologist (1860) 343, 369; (1861) 262-4. *The Mosses of Oxfordshire*, Journ. Bot. (1872) 363-74; (1885) 3-7. *On Eurynchium praelongum*, Journ. Bot. (1873) 19. *On Tortula inclinata as a British plant*, Journ. Bot. (1874) 1. *On Dicranum undulatum as a native of Britain*, Journ. Bot. (1874) 175. *Two additions to the British Moss list*, Journ. Bot. (1880) 46-9. *Jamaica Mosses and Hepaticae*, Journ. Bot. (1887) 45-50, 118, including a new species, *Scapania grandis*, and thirty-eight which were additional to the island. *New or rare British and Irish Mosses*, Journ. Bot. (1887) 111, including *Bryum obtusifolium*. *Two recent additions to the British Mosses*, namely, *Bryum gemmiparum* and *Sphagnum Torreyanum*, Journ. Bot. (1883) 233. *On Campylopus brevifolius*, Journ. Bot. (1883) 294. *New Exotic Mosses*, in which eight new species, *Orthotrichum hortense*, *Macromitrium prolixum*, *Meteorium ustulatum*, *Homalia densa*,

¹ See memoir by the author in *Journ. Bot.*, April, 1897.

Raphidostegium tegeticula, *Isopterygium acuminatum*, *Acrocladium trichocladium*, and *Hypnum detezum*, are described in Journ. Bot. (1892) 97-9. Some *New Zealand Mosses and Hepaticae*, in which *Helmsia collina* is first described, in Journ. Bot. (1894) 78. In the Naturalist (1879) 33 he describes *Bryum origanum* as a British plant.

Mr. Boswell also compiled the *London Catalogue of British Mosses* for the Botanical Locality Record Club, to which he acted as botanical referee. He prepared the valuable list of Mosses of Oxfordshire and Berkshire which appeared in my *Oxfordshire Flora*, and he kindly allowed me to consult his note-book for the purpose of copying out any notes it contained on the flora of Oxfordshire and Berkshire. The destruction of so many of the wild portions of ground in our neighbourhood was always a theme for him to discuss and deplore, and he was wont to take a pessimistic view of the field-botany of the future. By his death I lost a valued friend and kindly helper.

Dr. F. ARNOLD LEES, the author of the excellent *Flora of West* LEES, F. A *Yorkshire, &c.*, and who was for some years editor of the *Report of the Botanical Record Club*, resided for a short time about 1885 at Reading. Whilst there he gave a precise locality for *Diplotaxis muralis* (which was included as an unlocalized plant in Mr. Flower's list and probably not correctly named), and for some other plants about Reading.

My *Flora of Oxfordshire*, published in 1886, contained notices of some of the most interesting plants of Berkshire, especially those which occur near the border-line of the two counties. Though Berkshire had been explored at various times by a somewhat large number of botanical observers, its treasures were not exhausted, as will be seen by the considerable additions made to its flora by my friends and myself. My chief fellow-workers have been Mr. BOLTON KING, a valued companion in many a pleasant ramble, whose keen eye left little unnoticed, and who discovered *Galium Bakeri* and other forms not before recorded, and who made a list of plants in the neighbourhood of Eton; Mr. F. TUFNAIL, an active and valued coadjutor, who was the first to record *Lepidium heterophyllum*, var. *canescens*, and the more or less naturalized *Eranthis* (*Helieboroides*) *hyemalis*, *Anthoxanthum Puelii*, *Euphorbia Cyparissias*, and *Mercurialis annua*; the Rev. G. F. DE TEISSIER, my Northamptonshire helper, who had removed to Berkshire, and who found *Anemone ranunculoides* as a naturalized plant there; the Rev. F. W. BENNETT, another valued friend and companion in many a ramble, who discovered *Galeopsis* (*versicolor*) *speciosa* near Wittenham. The Hon. J. L. WARREN, afterwards Lord de Tabley, gathered *Stachys ambigua* near Holmwood. My own discoveries, published in the *Flora of Oxfordshire*, some of which had been already published in the pages of the *Journal of Botany* and in the *Reports of the Botanical Record and Exchange Clubs*, are as follow:—*Papaver*

Lecogii, *Fumaria densiflora*, *F. Vaillantii*, *F. parviflora*, *Lepidium Draba*, *Viola permixta*, *Hypericum dubium*, *Trifolium scabrum*, *T. striatum*, *Lathyrus Aphaca*, *Prunus domestica*, *Rubus macrophyllus*, *R. thyrsoides* (*pubescens*), *R. radula*, *Sedum album*, *Pimpinella magna*, *Apium graveolens* (native), *Filago spathulata*, *Crepis taraxacifolia*, *Utricularia minor*, *Chenopodium hybridum*, *Potamogeton Friesii*, *P. (juncus) interruptus*, *Orchis incarnata*, *Habenaria bifolia*, *Sparganium neglectum*, *Scirpus pauciflorus*, *Eleocharis multicaulis*, *Carex axillaris*, *Phalaris canariensis*. *Festuca Myuros*, and *Chara fragilis*. About forty species were added therefore to the list of Berkshire plants, including nine non-indigenous species.

Since the appearance of the *Flora of Oxfordshire* in 1886 little has been published on the botany of Berkshire. In the *Journal of Botany* for 1887 (p. 339) the Rev. W. MOYLE ROGERS, the eminent botanologist, gave an enumeration of the plants which he noticed about Beedon. In this list *Mimulus* was recorded for the first time, and the author claimed as additions to the county flora *Rubus Borreri* (*Sprengelii*), *R. diversifolius*, *R. flexuosus* (*foliosus*), *R. dentatus*, *R. calvatus* (*villicaulis*), and *R. corylifolius*, var. *conjungens*. In the same journal, 1888, p. 156, Mr. Rogers published the following species of *Rubus* which had been named by Prof. Babington, and which Mr. Rogers considered to be new to the county—*Rubus nitidus*, *R. incurvatus*, *R. carpinifolius*, and *R. saziocolus*. Some of these had been already found by me. In 1890 Hawkins' *Guide to Newbury and the Neighbourhood* was published, the whole arranged and edited by F. G. Bennett, F.G.S. It contained a list of about 170 plants, chiefly supplied by my friend Mr. H. WEAVER, the station-master of Newbury. Both Berkshire and Hampshire localities are given. *Oenothera biennis*, under the name of *O. vulgaris*, is mentioned for the first time as occurring in the county. In the *Journal of Botany* I gave, in 1892, an account of the most interesting discovery in Berkshire of *Illecebrum verticillatum* by my friend Mr. A. R. Fisher, and of that of *Arnoseria pusilla* by his father, Mr. W. W. Fisher of Oxford. In 1893 I recorded the discovery by my friend Mr. Tufnail of *Galium sylvestre*, and on p. 327 of the *Journal of Botany* for 1893 will be found some notes contributed by me on the flora of Berkshire, and a request for information respecting some of the doubtful plant-records, which did not however elicit any fresh knowledge. The various *Reports of the Botanical Exchange and Record Clubs*, published since 1885, contain notices of several of my additions to the flora of Berkshire: *Carex distans* in 1885; *Potamogeton pinnatifidus* (*coloratus*) in 1886; *Rosa sepium* (*agrestis*) and *Nitella translucens* in 1887; two casuals, *Erysimum* (*Couringia*) *orientale*, *Bunias orientalis*, &c., and several varieties in 1888; *Myosotis sylvatica*, *Carex elongata*, and *C. strigosa* in 1890; *Mentha affinis*, *Buda marina*, *Polygonum dumetorum*, *Carex stricta* (*elata*), *Tolypella glomerata*, and some casuals in 1891; *Fumaria confusa*, *Stellaria umbrosa*, *Rubus pyramidalis*, *R. Schlechtendalii*, *R. rudis-vera*, Gen-

tiana germanica (confirmatory), *Asperugo procumbens*, *Chenopodium opulifolium*, *C. ficifolium*, *Bromus arvensis*, and *Nitella mucronata* in 1892.

Among my more recent correspondents and helpers may be mentioned—Miss FRY, the discoverer of *Crepis biennis* and other interesting plants about Upton; Mrs. JAMES and Mr. CARLES, who found *Doronicum Pardalianches* near Besilsleigh; Miss PARKER, who has sent me notes on plants about Tubney; Miss BEATRICE TAYLOR, who has found many fungi on the Foxcombe range of hills; Mr. STANTON of Park Place, near Henley, who has made a very valuable list of plants from that charming neighbourhood, and who was possibly the first discoverer of *Valerianella rimosa* in Berkshire; Mr. F. BELLAMY, who made a collection of plants about the 'Ridgeway,' among which was the first undoubted specimen of *Gentiana germanica* from the county, and who has made a series of most interesting phenological observations; Mr. W. WHITWELL, who has sent me notes of Berkshire plants observed by himself, and which with his usual kindness he extracted from his herbarium for me; Mr. WEAVER of Newbury, who supplied me with notes on more recent finds, including *Impatiens biflora*, which is completely naturalized by the Emborne stream; Mr. C. E. SALMON, who contributes notes of plants seen about Wokingham; Mr. HOLLAND of Oxford, who gives the localities of plants observed round Reading; the late Mr. A. LOMAX of Liverpool, who has forwarded to me the names of a few plants from Hagborne; my friend the Rev. H. J. RIDDELSDELL of St. Michael's College, Aberdare, who has told me of many plants seen in various parts of the county, including a new locality for *Potamogeton alpinus* (*rufescens*); Mr. F. T. RICHARDS of Trinity College, Oxford, my companion in many a long trudge through the county, and a ready helper in any difficulty, who has found *Stackys annua* and *Seturia glauca* as casual plants near Oxford; Mr. GARNSEY of Magdalen College, Oxford, whose help I have already tried to acknowledge, and who has supplied me with notes on the flora of the portion of Berkshire immediately adjoining Oxford; Mr. F. TUFNAIL, who, in addition to the discoveries already mentioned, has made a list of more than 300 plants seen about Mortimer, among them *Erodium moschatum*, and who has made a most interesting addition to our flora by the discovery of *Phegopteris polypodioides*; and more recently Mr. A. B. JACKSON of Newbury, who has noticed *Caucalis latifolia*, *C. daucooides*, and other casual plants about that town; Miss HUMFREY of Shippon, who has found *Astragalus danicus* near West Ilsley; Mrs. BATSON of Welford Rectory, and her friend Miss N. E. BOWEN, who have made a list of plants seen about that place which contains several plants of interest. Miss BEALES of Inkpen has rediscovered *Herminium* on the chalk downs, and has recorded the occurrence of *Crocus vernus* in a locality where it is certainly wild, if not indigenous, near Kintbury; Miss M. NIVEN of

edition of the same work. When Linnaeus gives a reference in his *Genera Plantarum* to a previous writer or a synonym, I have usually quoted it. The references to the *Institutes* of Tournefort are to the plates, not to the pages.

Beneath the name of the *Genus* comes the *Specific name* printed in Clarendon type, followed by the name of its author and the place, and usually the date, of publication. The original spelling is retained as far as possible; in a few cases this has caused an apparent want of uniformity, e.g. in the genus *Potamogeton*, which Linnaeus treated as neuter, and therefore wrote *P. pusillum*, &c., while more correctly subsequent authors have considered it to be masculine, and we therefore find *P. acutifolius*, Link, &c. In the genera *Capnoides*, *Helleboroides*, and *Juncoides* too, there is a diversity of practice. Kuntze and others have written *Juncoides sylvaticum* and *Helleboroides hyemale*, while we have *Capnoides lutea* of Gaertner.

The names of species that are evidently not native to the county are printed in small roman capitals.

Then follows the *Popular name* in italics; mere translations of the scientific name are purposely avoided.

Below these are placed various *synonyms*, printed in italics. Such are given when the name in Syme's *English Botany*, Babington's *Manual of British Botany*, Hooker's *Student's Flora*, or *The Index Kewensis* differs from the one I have adopted, in order to make the work more useful to those readers whose botanical library is limited. A few pre-Linnean names are cited for the purpose of showing the genesis of the name employed here.

References are given to the second edition of *Topographical Botany*, to the third edition of *English Botany*, with the page and plate, to Nyman's *Conspectus of European Plants*, and to the author's *Flora of Oxfordshire*; the plates of Baxter's *Phaenogamous Botany* are also cited whenever they were probably drawn from local plants.

The plants enumerated have not been described in detail since the many descriptive British Floras render this unnecessary, but should the plant exhibit any local variation, attention will be directed to it. The plates in Syme's *British Botany*, which may be found on the reference shelves of the Bodleian Library, are quoted throughout, and the author takes the present opportunity to point out the very excellent descriptions given in the text of that work, which were drawn up by Dr. Boswell Syme. (The so-called popular portion written by Mrs. Lankester is not included in this commendation.)

The next paragraph contains, first, the grade of citizenship of the plant in Berkshire, that is whether it is a Native, apparently an aboriginal British species, as, for example, *Bellis*; or Denizen, at present maintaining its habitats, as if a native, without the aid of man, yet

liable to some suspicion of having been originally introduced, as *Helleborus foetidus*; or a Colonist, a weed of cultivated land, or about houses, and seldom found except in places where the ground has been adapted for its production by the operation of man, as *Papaver Rhoeas*; Alien, now more or less established, but either presumed or certainly known to have been originally introduced from other countries, as *Mimulus*; or a Casual, which may be defined as a plant, either of exotic origin or indigenous to some part of Britain, but which is not at present permanently localized in Berkshire situations, as *Erysimum repandum* and *Thlaspi perfoliatum*. Secondly, the habitat of the plant: I use the term Pratal for plants of meadow or rich and damp grass lands, as *Geranium pratense*; Pascual for plants of pasture and grassy commons where the herbage is less luxuriant than in the meadow lands, as *Prunella* and *Trifolium repens*; Ericetal for plants of heaths, as *Calluna* and *Scirpus caespitosus*; Uliginal for plants of swamps or boggy ground, as *Drosera*; Lacustral for plants usually immersed in water or floating on its surface, as *Potamogeton*; Paludal for plants of marshy ground, the roots of which are in water or wet ground most part of the year, or constantly, as *Typha* and *Parnassia*; Inundatal for plants on places liable to be inundated in wet weather, but often dry in summer, as *Potamogeton vulgaris*; Viatical for plants of roadsides, rubbish-heaps, and frequented places, as *Urtica dioica*; Agrestal for plants of cultivated ground, as *Veronica agrestis*; Glareal for plants of dry exposed ground, chiefly on gravel, chalk, or sand, as *Ornithopus* and *Sedum acre*; Rupestral for plants of walls and rocks, as *Cotyledon*; Septal for plants of hedge-banks and hedgerows, as *Stellaria holostea*; Sylvestral for plants of woods and shaded places, as *Paris*. It will be obvious that some of our plants may be put in two or more of these divisions. To the habitat is attached more full description of its places of growth, and a statement as to its frequency or rarity in the county. Thirdly, the time of flowering and the duration, annual or otherwise.

A paragraph is then devoted to giving the earliest record for the plant in Berkshire with which the author is acquainted, with the date, the name of the recorder or finder of the plant in the county, the name by which it was called, and the locality in which it grew. This record may be a printed (these have the preference) or a written one, published or unpublished; it may be a dried specimen or a MS. note¹. Although extreme pains have been taken to ensure that the record quoted is the earliest, it is possible that subsequent research may in a few instances discover some that are earlier. The compila-

¹ The unpublished ones are always printed in italics; when the record is published the name of the work is in italics; when the finder of a plant publishes the record in a journal or when some one else publishes his record, the name of the finder is given in Roman letters.

tion of these records has cost the author much time and labour, partly because the earlier botanists lived on the border of the county, so that it is often doubtful whether the plant was actually seen in Berkshire. In many cases localities are stated in general terms, such as 'about Oxford,' 'about Pangbourn,' 'about Reading,' which may be either in Oxford or Berks, or in both counties, or 'about Bagshot,' which may be either in Berks or Surrey. The author has tried to interpret these vague records in a satisfactory manner, but he cannot pledge himself in some few cases to absolute accuracy.

Underneath the paragraph devoted to the first record are ranged the localities which are given to those plants which it is deemed necessary to distinguish in this way. The topographical names are spelt as on the Ordnance Map, and are arranged according to the river districts :—

1st,	those which are drained by the Isis or Upper Thames.
2nd,	" " Ock.
3rd,	" " Pang or Mid Thames.
4th,	" " Kennet.
5th,	" " Loddon or Lower Thames.

The author is responsible for all the records to which no recorder's name is attached, and a note of admiration (!) after a record signifies that the author has seen the plant in the locality to which it is appended. All records which are not those of his own discovery have the authority for their occurrence printed in italics : occasionally more than one botanist has recorded a plant from the same locality ; in such a case, priority of discovery has the preference. When a plant is very rare the date of the last notice of it is usually appended. After the records a paragraph is devoted to any local peculiarity of structure or distribution, &c., which may be thought interesting.

The named varieties of the plant are treated in a similar way to the plant itself, so far as nomenclature and distribution are concerned, but the nomenclature of the varieties is avowedly less perfect and complete than that of the species. When a plant has no detailed list of localities enumerated, it is because it is one of the common species of the county.

Lastly, the occurrence or non-occurrence is noted of each plant in the bordering counties.

Notices of species not found in Berkshire are enclosed in brackets [], and the names are printed in small Roman capitals.

At the end of the Flora proper a summary of the Berkshire plants is given, in which the total number of Berkshire species is enumerated, and the grade of citizenship is stated to which they can lay claim. Very rare plants and plants which have become extinct in the county are specially noticed, and a brief sketch is given of the comparative

distribution of British species. The Berkshire and Oxfordshire floras are compared at greater length, and remarkable cases of absence of certain plants from Berkshire are pointed out.

THE PRINCIPAL HERBARIA CONSULTED DURING THE PREPARATION OF THIS FLORA.

Herb. Brit. Mus. The British Museum Herbarium at Cromwell Road, South Kensington, contains the Berkshire plants collected by Sir Joseph Banks, Samuel Rudge, E. Forster, Dr. H. Trimen, J. Carroll, Miss Eliz. Chandler, W. Hewett, Miss Vansittart, and a large number of other specimens collected by the members of the Botanical Record Club.

Herb. Oxf. The British and Fielding Herbaria preserved at the Botanic Garden at Oxford. Also the Morison Herbarium collected by J. Bobart about 1690, the Du Bois Herbarium collected about 1700, the Sherardian Herbarium collected about 1720, and the Dillenian Herbarium collected about 1730.

Also the more modern collections made by Mr. Fielding, Mr. W. Baxter, Dr. Ayres, Prof. Williams, Prof. Daubeney, Prof. M. A. Lawson, Mrs. Westwood, Mr. H. E. Garnsey, Mr. Henry Boswell, Mr. T. Cartwright, and others.

Herb. Linn. Soc. The Herbarium of the late Sir James E. Smith at the Linnean Society, Burlington House, has a few local specimens, but it is not very conveniently arranged for consultation.

Herb. Pharm. Soc. The Herbarium of the Pharmaceutical Society, 17 Bloomsbury Square, W.C., contains a few local specimens collected by Mr. T. Thurland and the author.

Herb. Kew. The Herbarium at the Royal Gardens, Kew. Two important collections to British botanists are kept separate from the huge general collection, namely, the herbaria of Mr. H. C. Watson and Mr. W. Borrer.

Herb. Cecil. A small collection made by Mrs. Cecil, in the possession of the Northamptonshire Natural History Society, contains a few plants from the neighbourhood of Newbury.

Herb. Syme. The collection of Dr. J. Boswell Syme, in the possession of Mr. F. J. Hanbury, of The Common, Upper Clapton.

Herb. Druce. The author's Herbarium contains almost all the plants mentioned in the Flora.

Herb. Bicheno. The Herbarium of the late Mr. J. Bicheno is in the Swansea Museum. Sometime ago the author inquired of the officials if it contained plants from Berkshire, but he was informed that it did not. Recently, and since the text of the Flora has been printed,

the Rev. H. J. Riddelsdell has kindly examined it for me. It contains about seventy Berkshire plants, some of which are first records. See the *Botanologia* for particulars.

LIST OF BOOKS AND MSS. QUOTED IN THE FLORA.

- Ann. and Mag. Nat. Hist.* The Annals and Magazine of Natural History, 1st series, 1841-1847; 2nd series, 1848-1857; 3rd series, 1858-1867.
- Ashmole, E., Memoirs of.* Edited by Dr. Plot, ? 1717. Brit. Mus. Press-mark 615 a 11. Also MSS. in copy of How's *Phytologia* in the Bodleian Library.
- Bab. Brit. Rubi.* The British Rubi. By C. Cardale Babington, M.A., F.R.S. Lond. 1869.
- Bab. Man. Brit. Bot.* Manual of British Botany. By C. Cardale Babington, M.A., F.R.S. Ed. i. 1843, to ed. viii. 1881.
- Banks, Str Joseph.* Copy of Hudson's *Flora Anglica* in Brit. Mus. Library with MS. notes.
- Bart. MSS.* Various notes and lists by Baxter in my possession, and also his notes in a copy of Ray's *Synopsis*, and in Sibthorp's *Flora Oxoniensis*, in the possession of his grandson.
- Bart. Phaen. Bot.* British Phaenogamous Botany. By William Baxter, A.L.S. Oxford. 6 volumes, 1834-1843.
- Bart. Stirpes.* Stirpes Cryptogamae Oxonienses, 1825.
- Blackst.* Specimen Botanicum quo Plantarum plurium rariorum Angliae indigenarum loci natales illustrantur. Authore J. Blackstone. Lond. 1746.
- Bobart, J.* See Morison.
- Boswell, H.* Papers in the *Phytologist*, n.s. (1860) pp. 99, 343, 369; (1861) p. 262; *Journ. Bot.* (1872) p. 363; and in my *Flora of Oxfordshire* (1886) p. 402.
- Bot. Exch. Club. Rep.* Reports of the Botanical Exchange Club of the British Isles, 1862-1893. These contain many of my discoveries.
- Bot. Guide.* The Botanist's Guide through England and Wales. By Dawson Turner, F.R.S., and L. W. Dillwyn, F.R.S. Lond. 1805.
- A copy with notes by Prof. Williams in the Library of the Botanic Garden, Oxford.
- Brewer.* *Flora of Surrey*, compiled by J. A. Brewer. Lond. 1863.
- Britt. Contr.* Contributions to a Berkshire Flora, by James Britten, in the Newbury District Field Club Proceedings, 1871.
- Additions to in *Journ. Botany* (1873) pp. 138-140.
- Broune, William.* MS. notes, presumably his, in a copy of Lyte's *Dodoens' Herball* in the Bodleian Library. See also *Catalogus Horti Botanici Oxoniensis*.
- Camd. Brit.* Camden's *Britannia*, Gough's edition, 1789, and other

- editions, including the Bodleian copy which contains MS. and plates. This contains no original notice of Berkshire plants.
- Clarke, W.* First Records of British Flowering Plants. Lond. 1897.
- Clusius, C.* Rariorum Plantarum Historia. Antwerp, 1601.
- Coles, Adam* in Eden; or Nature's Paradise. By William Coles. Lond. 1657.
- Comp. Cyb. Br.* Compendium of the Cybele Britannica. By H. C. Watson. Part i. 1868; ii. 1869; iii. 1870.
- Curtis, Fl. Lond.* Flora Londinensis. By Wm. Curtis. 6 fasc. 1777-1798, but see Journ. Bot. (1881) p. 310.
- Cyb. Brit.* Cybele Britannica. By H. C. Watson. 4 vols. Lond. 1847-59.
- Cyb. Br. Suppl.* Supplement to the Compendium. By H. C. Watson. Pars i. 1860, et pars ii. 1872.
- Dill. Ray.* The third edition of Ray's *Synopsis*, edited by [J. J. Dillenius]. 1724.
- Dillenius.* Historia Muscorum Opera Jo. Jac. Dillenii. Oxonii, 1741. Dillenius' own copy is in the Botanic Garden Library at Oxford, and the Mosses are in the Herbarium.
- *Hortus Elthamensis.* Lond. 1732. The copy coloured by Dillenius is in the Library of the Botanic Garden at Oxford, as is his copy of the *Synopsis* of 1724.
- Druce, Flora of Oxfordshire.* G. Claridge Druce. Oxford, 1886.
- Dyer, W. Thiselton, M.A., &c.* Notes of plants of the neighbourhood of Oxford. See Journ. Botany (1871) 145-148, and see also Phytologist 1861, p. 366, and 1863, p. 528.
- E. B.* English Botany. See Smith, Sir James E.
- E. B. Suppl.* Supplement to the above. Lond. Vol. i. 1831; vol. ii. 1834; vol. iii. 1843; vol. iv. 1849; and vol. v. 1865.
- Evelyn, John.* Sylva. Lond. 1664.
- Field and Semple.* Memoirs of Botanic Gardens at Chelsea. Lond. 1878.
- Flower, T. Bruges, F.L.S.* A list of plants seen about Reading, published in Robertson's *Environs of Reading*, 1843.
- Garnsey, H. E., M.A.,* Magdalen Coll., Oxford. MS. list of Berkshire plants.
- Ger.* The Herball. Gathered by John Gerarde. Lond. 1597.
- Ger. Em.* See Johnson.
- Gibson's Camden's Britannia.* 1695. Berkshire plants on p. 151.
- Gough's Camden's Britannia.* 1789. Berkshire plants on p. 311.
- Groves, H. and J.* The British Characeae. Reprinted from Journ. Bot.
- Hall.* The Book of the Thames. Mr. and Mrs. S. C. Hall. Lond. 1859.
- Hawkins' Descriptive Guide to Newbury and Neighbourhood*, arranged and edited by F. G. Bennett, F.G.S., 1890. Contains a list of plants by Mr. H. Weaver.
- Hewett.* The History of the Hundred of Compton, Berks. By W. Hewett. 1844.

- Hook. Br. Fl.* The British Flora. Sir W. J. Hooker. Lond. ed. iii. 1835.
- Hook. St. Fl.* The Student's Flora. Sir J. D. Hooker. Lond. ed. i. 1870; ed. ii. 1878; ed. iii. 1884.
- How, Phyt. Brit.* Phytologia Britannica. By [W. How]. Lond. 1650. Also his own copy with notes in the Library of Magdalen Coll., Oxford, and another copy in the British Museum Library, and one containing Ashmole's notes in the Bodleian Library.
- Huds. Fl. Ang.* Flora Anglica. Gul. Hudson. Lond. ed. i. 1762; ed. ii. 1778; the latter in two volumes. Also a copy with MS. notes by Dr. Lightfoot in the Bot. Gard. Library at Oxford, and Sir Joseph Banks' copy in the Brit. Mus. Library.
- Irvine.* The London Flora. By Alex. Irvine. Lond. 1838.
- Johns. Merc.* Mercurius Botanicus sive plantarum gratia suscepti itineris anno 1634 descriptio; and Pars altera. Lond. 1641. By Thos. Johnson.
- Johnson.* Gerard Emac. or Gerard Em. The Herball, by John Gerard, very much enlarged and amended by Thomas Johnson. Lond. 1633.
- Journal of Botany.* Lond. 1863 and following years.
- King Cooper, Lieut.-Col.* A History of Berkshire. Lond. 1887.
- Leslie, G. D.* Our River. Lond. 1888.
- Lightfoot MSS.* Notes by Dr. Lightfoot in a copy of Hudson's *Flora Anglica* and in Ray's *Synopsis* in the Library of the Botanic Garden.
- Lindley.* Synopsis of the British Flora. By John Lindley. Lond. ed. i. 1829; ed. ii. 1835.
- Linn. Soc. Journ.* Journal of the Linnean Society, 1857 and in progress.
- Linn. Soc. Trans.* Transactions of the Linnean Society, 1791 and in progress.
- Lobel, Adv.* Stirpium Adversaria Nova Petro Pena et M. de Lobel. Lond. 1570.
- *Obs.* Matthiae de Lobel Stirpium Observationes. Antwerp, 1576. Some of Lobel's MSS. are preserved in the Library of Magdalen College, Oxford.
- Loudon.* Arboretum et Fruticetum Britannicum. By J. C. Loudon. 4 vols. Lond. 1838.
- Lowe's Ferns.* Ferns British and Exotic. By E. J. Lowe. 8 vols. Lond. 1868.
- Lysons' Magna Britannia.* By Rev. D. and S. Lysons, vol. i. Berkshire. Lond. 1806.
- Masters, Maxwell T.* Flowering Plants and Ferns of Oxfordshire. Rep. of Ashmolean Society, Oxford, 1857.
- Mavor, Agr. Berks.* General View of the Agriculture of Berkshire. By W. Mavor, LL.D. Lond. 1809. Contains an important list of Berkshire species.
- Merrett, Pinax.* Pinax Rerum Naturalium Britannicarum Auth. Christophero Merrett. Lond. 1666.

- Mill, G. G.* List of Flowering Plants found in neighbourhood of Great Marlow in 1843. See *Phytologist* (1843), pp. 983-995.
- Morison, Umb.* Plantarum Umbelliferarum distributio nova. Authore Roberto Morison. Oxonii, 1672.
- *Hist. Oxon.* Plantarum Historiae Universalis Oxoniensis. Pars secunda. Oxonii, 1680.
- — Pars tertia ed. Jacobus Bobartius. Oxonii, 1699. (Bobart's own copy, with notes, is in the Library of the Botanic Garden.)
- New Bot. Guide.* The New Botanist's Guide to the localities of the rarer plants of Britain. By H. C. Watson. Vol. i. 1835; vol. ii. 1837. Vol. i. contains a list of Berkshire plants on pp. 163-166.
- Newbury Field Club Report* (see Britt. Contr.), pp. 35-59. 1870-71.
- Newbury.* History and Antiquities of Newbury and its Environs, 1839. It contains on pp. 310-340 Mrs. Anne Russell's Catalogue of Plants seen about Newbury.
- Nyman.* Conspectus Florae Europaeae. By C. F. Nyman. 1878-1882. Suppl. 1889, 1890.
- Pampl.* Plants of Goring and Pangbourne. By W. Pamplin, A.L.S., in *Phytologist*, o. s. (1854), pp. 153-157.
- Park. Theatr.* Theatrum Botanicum . . . or an Herball of large extent. Collected by John Parkinson. Lond. 1640.
- Parnell, Grasses.* The Grasses of Britain. By Richard Parnell. Edin. and Lond. 1845.
- Phillips, Jno.* Geology of Oxford and the Valley of the Thames. Oxford, 1871.
- Phyt. O. S.* The *Phytologist*, old series. Conducted by George Luxford, June 1841 to 1848, and by Ed. Newman 1849 to July 1854.
- *N. S.* The *Phytologist*, new series. Conducted by A. Irvine, May 1855 to July 1863.
- Pinnock's History and Topography of Berkshire.* Lond. 1819.
- Plot.* The Natural History of Oxfordshire. By Robert Plot, LL.D. Oxford, 1677, ed. ii. 1705.
- Preston.* The Flowering Plants of Wiltshire. By the Rev. T. A. Preston, M.A. 1888.
- Pulleney, R.* Historical and Biographical Sketches of the Progress of Botany in England. 2 vols. Lond. 1796.
- Purton, Midl. Fl.* A Botanical Description of British Plants in the Midland Counties. By T. Purton. Lond. 2 vols. 1817; Appendix 1821.
- Radley.* The Fauna and Flora of Radley and its neighbourhood. Oxford, 1896. The list of plants is edited by Mr. F. J. Stone, M.A.
- Ray, Cat.* Catalogus Plantarum Angliae: Op. Joannis Raii. Lond. 1670. Ed. ii. 1677.

- Ray, Syn.* Synopsis Methodica Stirpium Britann. auct. Joann. Raio. Lond. ed. i. 1690; ed. ii. 1696. (A copy of the first edition, from Prof. Sibthorp's sale, with notes by Dillenius, is in the possession of the author.)
- The third edition. By [J. Dillenius]. Lond. 1724.
- Ray's Letters.* Philosophical Letters. By W. Derham. Lond. 1718.
- Ray, Life.* Select Remains of the Learned John Ray. By the late W. Derham. Lond.
- Rees' Cyclop.* New Cyclopaedia. Ed. by Abraham Rees. Lond. 39 volumes. 4to. 1802-20. The Botanical notes and Biographies written by Sir James E. Smith.
- Reichb. Ic. Fl. Germ. et Helv.* Icones Florae Germanicae et Helveticae. 21 vols. 1834, and in progress. By H. G. L. et H. G. Reichenbach.
- Richardson, Dr.* Correspondence of. By Dawson Turner. Yarmouth, 1835.
- Robertson's Environs of Reading.* 1843. See Flower, T. Bruges.
- Rogers, Rev. W. Moyle.* A Key to the British Rubi. Lond. 1893. Reprinted from the Journal of Botany, Apr. 1892-Feb. 1893.
- Russell's Cat.* A Catalogue of Newbury Plants. By Mrs. Anne Russell. Newbury, 1839.
- Seem. Journ. Bot.* The Journal of Botany, British and Foreign. Edited by Berthold Seemann, Ph.D., F.L.S. Lond. 1863 et sequentibus.
- Sibth.* Flora Oxoniensis auct. J. Sibthorp. Oxonii, 1794. Also a copy, with MS. notes by Prof. Williams, in the Library of the Botanic Garden at Oxford, and a copy, with MS. notes by the Rev. W. W. Newbould, in the author's possession.
- Sm. Comp.* Compendium Florae Britannicae auct. J. E. Smith. Lond. 1800, with MS. notes by Prof. Williams, in the author's possession.
- Sm. Fl. Br.* Flora Britannica auct. J. E. Smith. 3 vols. 1800-1804. A copy with notes by Mr. N. Winch is in the Linnean Library.
- Sm. Engl. Fl.* The English Flora. By Sir J. E. Smith, M.D., F.R.S. 4 vols. Lond. 1824-1828.
- Sm. E. B.* English Botany. By J. E. Smith. 36 vols. 1790-1814. The figures by James Sowerby.
- Sm. MSS.* Notes on the original drawings for E. B. preserved in the British Museum at Cromwell Road.
- Smith.* Correspondence and Memoir of. Edited by Lady Smith. 2 vols. Lond. 1832. The original letters preserved in the Library of the Linnean Society, which also contains many unprinted letters.
- Sole.* Menthae Britannicae. By W. Sole. Bath, 1798.
- Spencer, N.* Complete British Traveller. 1771.
- Stephenson, John, and Churchill, James M.* Medical Botany. Lond. 4 vols 1831.
- Stone, E. J., M.A.* Results of Meteorological Observations made at the Radcliffe Observatory, Oxford. 1881-87.

- Sutton*. Permanent and Temporary Pastures. By Martin J. Sutton. Lond. ed. iv. 1891.
- Syme, E. B.* English Botany. Edited by J. T. Boswell Syme. Ed. iii. Lond. 1863.
- *E. B. Suppl.* The Supplement to above. Edited by N. E. Brown. 1892-1893.
- Symons, G. J.* British Rainfall.
- Top. Bot.* Topographical Botany. By H. C. Watson. 2 vols. 1873-74. Ed. ii, edited by J. G. Baker and the Rev. W. W. Newbould, Lond. 1883, is the work quoted.
- Townsend, F. W.* Flora of Hampshire. Lond. 1883.
- Turner, Herball.* A New Herball. By W. Turner. Part i. Lond. 1551; part ii. Cologne, 1562; part iii. Cologne, 1568.
- *Names.* The Names of Herbes, &c. Gathered by W. Turner. Lond. 1548.
- Turner, Robt.* Botanologia; the British Physician. By Robt. Turner. Lond. 1664.
- Walk. Fl. or Walker Fl.* The Flora of Oxfordshire and its contiguous counties. By Richard Walker. Oxford, 1833. Also a copy with MS. notes by R. Walker, R. A. Pryor, and M. T. Masters in the Library of the Botanic Garden at Oxford.
- Walker, F., Mr.* MS. list of plants seen about Great Oakley House.
- Watson, H. C.* See *Top. Bot.*, New Bot. Guide, Cybele Britannica, &c.
- Weaver, H.* A list of plants seen about Newbury in Hawkins' *Guide to Newbury*.
- Wellington College Natural History Reports.* Edited by the Rev. C. W. Penny, M.A., and more recently by the Rev. H. P. Fitzgerald.
- White, Dr. Buchanan.* A Revision of the British Willows. Journ. Linn. Soc., Nov. 13, 1890.
- Winch MSS.* Notes by Mr. N. Winch, in a copy of *Flora Britannica* in the Linnean Society's Library.
- With. Bot. Arr.* A Botanical Arrangement of British Plants, &c. By Wm. Withering. Birmingham, ed. i. 2 vols. 1776; ed. ii. edited by J. Stokes, 3 vols. 1787-1792; ed. iii. in 4 vols. 1796.
- Wood, Anthony à.* Athenae Oxonienses, and the History and Antiquities of the University of Oxford. vol. ii. 896-98. 1796.

ADDITIONS AND CORRECTIONS

- Page 26, l. 12, add 'Chevening, *Herb. Bicheno*.'
- „ 27, l. 31, add 'In a cornfield near West Hendred, *Mrs. Hayden*.'
- „ 29, l. 18. Windsor Lake may be in Middlesex; if so, the first record will be found in *Mavor's Agr. Berks* of 1809 as *Nymphaea alba*.
- „ 43, l. 25, after '*Barbarea*' add 'Mac. M. Met. Minn. 259 (1892).'
- „ 52, l. 33, insert '4. Kennet. Near Newbury, *Mr. A. B. Jackson*, but the specimens are not typical.'
- „ 55, l. 38, add '*Thatcham, Herb. Bicheno*.'
- „ 63, l. 22, after '*C. Coronopus*' add '*Karst. Deutsch. Fl.*'
- „ 80, last line, add 'A specimen which I gathered on the West Ilsley Downs in 1895 the Rev. E. F. Linton places under *P. oxyptera*, but it is not characteristic.'
- „ 90, l. 14, add 'Newton Common, near Newbury, about 1820, *Herb. Bicheno*.'
- „ 92, l. 41. The authority for *Alsine aquatica* is 'Britton in *Mem. Torr. Club*, v. (1894) 356.'
- „ 94, l. 21, and p. 95, l. 24. The authority for *Alsine holostea* and *A. graminea* is 'Britton, l. c. p. 150.'
- „ 97, l. 4. First found by *Mr. Bicheno* at Streatley in 1815.
- „ 137, l. 2, for '*Elwell*' read '*Ellman*.'
- „ 138, l. 38, add 'Finchampstead.'
- „ 146, l. 10, add 'Boar's Hill, *Miss Walker*.'
- „ 151, l. 32, add 'Near Strathfieldsaye.'
- „ 174. There is a specimen of *Rubus Sprengelii* in *Bicheno's* herbarium from Snelsmore Common.
- „ 199, l. 7. *Mr. Bicheno* is the earliest recorder of this plant in *Mavor's Agr. Berks*, 1809.
- „ 206, l. 7, add 'Near Strathfieldsaye.'
- „ 235, l. 7, add 'Oat mill near Abingdon, *Herb. Bicheno*, 1815.'
- „ 235, l. 27, add 'Found by *Mr. Bicheno* at Shippon in 1815.'
- „ 248, l. 5, for 'at' read 'near.'
- „ 250, l. 4. 'Donnington, *Mr. Bicheno*, 1815' precedes Prof. Henslow's record.
- „ 252, l. 21, insert '*Mr. Bicheno*, 1812.'
- „ 260, l. 1, insert 'Near Newbury, *Herb. Bicheno*.'
- „ 271, l. 6, add '*Aldermaston, Herb. Bicheno*.'
- „ 276, l. 16, insert '2. Ock. Besilsleigh, *Miss Walker*!'
- „ 279, l. 12, insert 'Near Newbury as *G. rectum, Herb. Bicheno*, 1821.'
- „ 284, l. 32, for '1883' read '1833.'
- „ 291, l. 1. I believe *Mrs. James*, the sister of *Mr. Carles*, was the first to find *Doronicum*.
- „ 294, l. 32, add 'Near Fulling Mill, Newbury, *Herb. Bicheno*, 1821.'

- Page 316, l. 34, for '73, 1696' read 'App. 237, 1690.'
 ,, 322, l. 24, for 'Rev. H. Elwell' read 'Rev. E. Ellman.'
 ,, 328, l. 37, after 'O. Oxycoccus' add 'Mac. M. in Bull. Torr. Club, xix. (1892) 15.'
 ,, 334, l. 1, add 'Newbury, Herb. Bicheno, 1815.'
 ,, 355, l. 24, add 'Copse between Bagley and Wootton, Herb. Boswell.'
 ,, 366, l. 19, add 'Pusey, Herb. Boswell.'
 ,, 372, l. 5, insert '1. Isis. Buckland, Mrs. Milne in Herb. Boswell, 1860.'
 ,, 394, l. 3, insert '4. Kennet. Near Newbury, Herb. Bicheno,' but I have not seen the specimen.
 ,, 400, l. 13, add 'Donnington Castle, Herb. Bicheno.'
 ,, 401, l. 34, for 'SURINCISA' read 'SUBINCISA.'
 ,, 417, l. 31, insert 'Newbury, Herb. Bicheno, 1815.'
 ,, 431, l. 3 from bottom, for 'at' read 'near.'
 ,, 439, l. 29, for 'Asterius' read 'Asserius.'
 ,, 441, l. 12, for 'NTIDA' read 'NITIDA.'
 ,, 520, l. 10, for 'Brit. Mus.' read 'Linn. Soc.'
 ,, 539, l. 13, delete 'in Linn. Soc. Trans. 1892.'
 ,, 557, l. 25, and elsewhere, for 'Rev. L. V. Lester' read 'Mr. L. V. Lester.'

It may be well to add that I have found *Rubus fusco-ater* and *Utricularia major* in Oxfordshire, and the following plants in Buckinghamshire:—*Viola palustris*, *Lepidium rudemale*, *Polygala oxyptera*, *Sagina subulata* (confirmatory), *Medicago arabica*, *Potentilla silvestris*, *Rubus thyrsoides*, *R. dumnoniensis*, *R. rosaceus*, var. *infecundus*, *R. Bellardi*, *Radula*, var. *anglicanus*, *R. pulcherrimus*, *Epilobium roseum*, *Serratula*, *Filago apiculata*, *Campanula latifolia* (Woburn), *Euphrasia nemorosa*, *E. gracilis*, *Mentha piperita*, **M. cardiaca*, *Utricularia major*, *Atriplex deltoidea*, *A. hastata*, *Polygonum mite*, *P. maculatum*, *Rumex pulcher*, *R. maritimus*, *Populus canescens*, *Salix Smithiana*, *S. ferruginea*, *S. cinerea*, *Potamogeton obtusifolius*, *P. polygonifolius*, *Zunnicellia palustris*, *Sparganium neglectum*, *Typha angustifolia*, *Juncus compressus*, *J. bulbosus* (*supinus*), *Carex disticha*, *C. pilulifera*, *C. pendula*, *C. flava* (true), *C. paniculata*, *Brachypodium pinnatum*, *Panicularia plicata*, *Alopecurus fulvus*, *Festuca rubra*, *Poa compressa*, *Aira praecox*, *A. caryophyllea*, *Calamagrostis epigeios*, *Arrhenatherum precatorium*, *Nitella translucens*, and *N. opaca*. Also *Rubus ericetorum*, Lefv., and *R. fusco-ater*.

I have also found the following species, which are without personal authority, in Topographical Botany for Bucks:—*Diplotaxis muralis*, *Viola canina*, *Spiraea Filipendula*, *Rosa micrantha*, *Poterium officinale*, *Oenanthe fluciatiilis*, *Arctium Lappa*, *A. minus*, *Gentiana germanica*, *Mentha sylvestris*, *Littorella*, *Potamogeton densum*, *P. alpinus*, *Scirpus sylvaticus*, *S. fluitans*, *Eleocharis acicularis*, *E. multicaulis*, *Apera Spica-venti*, *Poa nemoralis*, *Festuca Myuros*, *Agropyron caninum*, and *Hordeum nodosum*.

The following introduced species have also been noticed by me:—*Vogelia sagittata*, *Impatiens parvifolia*, *Lathyrus latifolius*, *Lonicera Caprifolium*, *Erigeron canadense*, *Erinus alpinus*, *Melissa*, *Petasites fragrans*, *Mimulus Langsdorffii*, and *Setaria viridis*.

SIGNS AND ABBREVIATIONS USED IN THE FLORA.

A. Annual.

B. Biennial.

Fl. Flora.

Herb. Herbarium.

Herb. Brit. Mus. The Herbarium at the Natural History Museum, Cromwell Road, South Kensington.

Herb. Oxf. The Oxford Herbarium at the Botanic Garden, Oxford, which contains the Morison (Bobart), Dillenius, Du Bois, Sherard, and other collections.

Herb. Cecil. Mrs. Cecil's Herbarium in the Northamptonshire Natural History Society's Collection. See also p. exci.

Obs. Observation.

P. Perennial.

[] When a species is enclosed in brackets, it means that the plant is not known to occur in Berkshire.

P When this sign follows a plant-record, it suggests that some mistake has been made in recording it, or may signify that the plant has been extirpated. If placed before the name of a plant, it suggests that some mistake of identification has been made.

! When this sign is put after a locality, it means that the author has seen the plant growing in that place. The sign is only used in cases of rarity or when the record appears to require confirmation.

***** One asterisk put before a name signifies that it is not indigenous in Berkshire.

****** Two asterisks before the plant mean that the plant is only of casual occurrence or is an alien in the county.

FLORA OF BERKSHIRE

DICOTYLEDONES.

RANUNCULACEAE, Jussieu, Gen. (1789) 231.

CLEMATIS, Linn. Gen. Pl. n. 616 (Dill. Hort. Elth. 73).

C. Vitalba, Linn. Sp. Pl. 544 (1753). *Traveller's Joy, Honesty, Old Man's Beard*.

Vitalba, Dodoens. *Viorna*, Ger. Em. 886.

Top. Bot. 1. Syme, E. B. i. 2, t. 1. Baxt. t. 129. Curt. Fl. Lond. iv. t. 37. Nyman, 1. Fl. Oxf. 1.

Native. Septal. Hedgerows, quarries, railway-banks, wood-borders, &c. Locally common. Climbing shrub. July–September.

First record. Sonning, *Mr. S. Rudge*, in *Herb. Brit. Mus.* 1800. Published by Dr. Noehden in *Mavor's Agr. Berks*, 252, 1809.

1. **Isis**. Cumnor, *Herb. Oxf.* Wytham Wood, very fine. Ashbury. Idstone.

2. **Ock**. Between Cumnor and Wootton, *Whitwell*. Near Tubney, *Walker*. Near Steventon by the Genge brook. Letcombe Basset. Lane at the back of Cumnor Hurst. East side of Foxcombe Hill near the Rifle Butts. Lockinge.

3. **Pang**. Very common in the hedges at Hampstead Norris and many other places, *Lousley*, in *Russell's Cat.* Pangbourn, *Pamplin*. Bradfield, *Jenkinson*. Englefield. In and about Unwell Wood in luxuriant growth. Streatley. Basildon. Purley. Near Reading on the railway-bank. Tilehurst. Ashridge Wood, abundant growth. Lane beyond Upper Basildon towards Ashampstead, beautiful specimens. Sulham. Bucklebury. Sandy lane near Bradley Farm. Frilsham. Yattendon. It appears to be absent from Cold Ash and neighbourhood.

4. **Kennet.** Sparingly between Hungerford and Riever Wood. Lambourn. Shefford. Weston. W. Ilsley. Hodecott. Kintbury in Irish Wood, &c. It is absent from a considerable portion of the Kennet valley, and does not occur on Greenham or Crookham Common.
5. **Loddon.** Sonning, *Rudge, in Herb. Brit. Mus.* 1800. Frequent near Marlow, *Mill.* Blackwater river, *Well. Coll. List.* Wargrave, *Melvill.* Twyford. Quarry Wood. Ashley Hill. About Park Place there are some specimens of very picturesque growth, which may be seen climbing up the trees in the avenue to a height of 70 feet. Maidenhead. Stubbings Heath. Near White Waltham. By the railway between Twyford and Maidenhead.

The *Clematis* is not a very variable plant except in size, and the more or less entire leaves. The form with entire leaves, the var. *integrata*, DC., which is probably identical with the *Vitis nigra* of Fuchs, is occasionally met with, as at Ilsley; the variation may be owing to the plant growing in a more open and drier situation than usual. The railway cutting near Goring is covered with a small prostrate form which appears to be near the sub-var. *prostrata* of O. Kuntze; see Monograph of the genus *Clematis* in *Verhandlungen des Bot. Ver. Prov. Brand.* xxvi. (1884), 101.

The distribution of *Clematis* in Berkshire is rather peculiar. A person might walk from Lechlade through the meadows to Oxford, or from Shrivenham through the vale to Abingdon, or from Hungerford down the Kennet valley to Reading, or across the commons of Greenham and the sandy heaths of Finchampstead, Sandhurst, Ascot, and Bagshot, and remark that *Clematis* was not to be seen in the county. Another traveller journeying along the Faringdon road, or from Wantage to Ilsley or Streatley, or from Streatley to Reading, or from Reading past Sonning and Wargrave to Henley, or from Henley to Marlow and Maidenhead, might say with equal truth: 'What a conspicuous feature in the vegetation of Berkshire is the *Clematis*!'

Its distribution is influenced by the soil. It is practically absent from the Oxford and the Kimmeridge Clays. It is frequent on the Coralline Oolite. It is abundant on the Lower and the Upper Chalk except where the latter is covered by tertiary deposits; but when these deposits are rich in calcareous matter the *Clematis* is found, as in the sandy lane by Bradley Farm. It is absent from the greater portion of the area of the Bagshot and the Reading beds, except where these are covered with drift of a calcareous nature. To this its occurrence at White Waltham, &c., is probably due.

The *Clematis* is found in all the counties bordering Berkshire.

In the *Systema Plantarum* (1735) Linnaeus, following Tournefort and other ancient writers, including Dioscorides, wrote the name *Clematitis*. This

method of writing the name was followed by many botanists. In the *Genera Plantarum* (ed. 1, 1737) Linnaeus altered the name to *Clematis*. This was an unfortunate change, for the name *Clematis* had been used for very different plants by botanical authorities. Kuntze in his *Revisio Generum Plantarum* has attempted to revive the older name, but as the name *Clematis* is employed in the first edition of the *Species Plantarum*, it is contrary to the revised laws of nomenclature to follow Kuntze's suggestion.

THALICTRUM, Linn. Gen. Pl. n. 617 (Tournefort, Inst. t. 270).

T. flavum, Linn. Sp. Pl. 546 (1753). *Meadow Rue*.

T. nigrum, Cordus (1561). *Thalictrum*, sive *Thalictrum majus*, Gerard, 1067 (1597).

Top. Bot. 3. Syme, E. B. i. 9, t. 8. Baxt. 254. Nyman, 5. Fl. Oxf. p. 4. Native. Paludal. Sides of ditches, brooks, and rivers, and in wet meadows. Locally common. P. May-July.

First record. *Thalictron*. These grow in all our meadows about Oxford, MS. in Lyte's Herball, 1660. *T. flavum*. Moist meadows, Dr. Noehden, in *Mavor's Agr. Berks*, 278, 1809.

1. **Isis**. Wytham, Fox. Faringdon. Inglesham. Lechlade. Near Binsey.
2. **Ock**. Meadows about Radley, Baxter. Nuneham, Boswell. Childswell Farm with remarkably large leaflets (var. *sphaerocarpum*), Whitwell. Marcham, Walker. Abingdon. Cholsey. Long Wittenham. Sutton Courtney.
3. **Pang**. Streatley, Garnsey, in *Herb. Oxf.* Pangbourn. Basildon. Tilehurst. Moulsoford.
4. **Kennet**. Ham Marsh, Russell's Cat. Newbury. Benham. Midgham. Theale, where it flowers later than the Faringdon plant.
5. **Loddon**. Sonning, Rudge, in *Herb. Brit. Mus.* 1800. About New Lock and Medmenham abundant and by the Thames generally, Mill. By the Blackwater, Salmon. Near Park Place, Stanton. Banks of Blackwater near Yateley Mill, Penny. Between Sandford Mill and Hurst in ditches, Melvill. Hurley. Wargrave. Near Windsor. Cookham. Loddon Bridge. Arborfield. Finchampstead. Old Windsor.

T. flavum is a rather variable plant, not only in the size of its leaflets but in the panicle being contracted or more open, while the fruits vary in shape. Some of these forms have been described as species. Our more common form is that which is figured in Reichenbach's *Icones Fl. Germ. et Helv.* iii. fig. 4640, as *T. Morisoni*, Gmel. The name was given in honour of Morison, Professor of Botany at Oxford, who described and figured the Meadow Rue, probably from a local specimen, on t. 12 of *Plant. Umbellif.*, which appeared in 1672. This is now considered to be the typical form. It flowers a little later than the variety *sphaerocarpum*, which is figured in Reichb. l. c.

fig. 4639. This has the panicle more contracted and the fruits globular-ovoid in shape, and has been noticed in the Binsey meadows. The third form is the *T. riparium* of Jordan's *Diagnoses*, 49, where it is described as a distinct species. The author says that the leaflets are shorter and larger, more deeply cut at the top and often trifid, the lobes often dentate, the panicle more leafy, and the anthers larger than in *T. flavum*. According to Syme it has a laxer panicle than the var. *sphaerocarpum*, and the fruits are oval-ovoid. This occurs by some of the small tributaries of the Upper Thames, and appears to flower earlier than the type. It is not often that we can distinguish these varieties with certainty because the fruits are so liable to be attacked by a gall insect, which destroys their natural shape in the vast majority of cases before they become mature. My idea is that at present we have, so far as our local plants are concerned, no good descriptions of these varieties, and that we need comparative cultivation of the more marked forms. It is very certain that a laxly panicked form is sometimes found with oval fruit, and that a plant with a contracted panicle may have oblong fruit.

T. MAJUS. Error. Mr. Watson in the *Cybele Britannica* states that *T. majus* was recorded for the Thames province by Dr. Mavor, and Dr. M. T. Masters in a paper on the Oxford Flora, read before the Ashmolean Society in 1857, refers to its extinction. The plant recorded by Dr. Mavor as *T. majus* was *T. flavum*.

ANEMONE, Linn. Gen. n. 614 (Tournefort, Inst. t. 147).

A. Pulsatilla, Linn. Sp. Pl. 539 (1753). *Pasque Flower*.

Pulsatilla vulgaris (Lobel. 1581), Miller, Gard. Dict. (1768). *Pulsatilla*, Matth. *Anemone pratensis*, Sibth. Fl. Oxon. 169 (not of Linn.).

Top. Bot. 4. Syme, E. B. i. 10, t. 9. Nyman, 2. Cyb. Br. 74. Fl. Oxf. 2. Native. Pascual. Grassy chalk downs. Local and not common. P. April-May.

First record. It groweth about Oxford as my friende Falconer tolde me, *Turner, Herball*, 1551. Recorded for the first time from a definite Berkshire locality by Dr. *Lightfoot* about 1790. The first printed record appears to be in *Mavor's Agr. Berks*, 1809, where it is said on the authority of Mr. *Bicheno* to grow on Ilsley Downs.

2. **Ock.** Among grass near Pusey, *Miss F. M. Parker*.

3. **Pang.** At Streatley, 8 miles from Reading, *Lightfoot's MS.* Also in *Purt. Midl. Flora*, 1821! Ilsley Downs, *Bicheno*, in *Mavor's Agr. Berks*, and *Hewett*, 1839, in *Herb. Brit. Mus.*! On the downs between Ilsley and Compton, but scarce; on the downs near Unhill Wood, plentiful, *Lousley*, in *Russell's Cat.*! Unhill and Yewtree Downs, *Hewett's Hist.*! Streatley and Pangbourn are the

head-quarters of *A. Pulsatilla*, Pamplin. Moultsford Downs, Bennett, in *Journ. Bot.* 1873, 139!

4. Kennet. Found on the border of a chalky ploughed field in the open country between Wickham and Kintbury, Miss Bowen.

The Pasque Flower occurs in Berkshire over a small area, where it is by no means continuous, but is found in scattered patches, which are more frequent on the slopes than on the tops of the chalk downs. I believe that it does not grow on ground that is above 400 or less than 200 feet above the sea. Some, if not all, of the specimens belong to the var. *A. tenuifolia*, Schleicher, in which, as the name implies, the leaves are more finely cut. Reichenbach in *Ic. Fl. Germ. et Helv.* iv. fig. 4657, called it *Pulsatilla vulgaris*, var. *angustisecta*. The description in Turner's *Herball* points to *A. Nemorosa*, but the figure is *A. Pulsatilla*.

Anemone Pulsatilla reaches its southern limit in Berkshire; it is found in Gloucestershire, and formerly occurred in Oxfordshire, but is not recorded for the other bordering counties.

In the *Flora of Oxfordshire* the genus *Pulsatilla* is kept distinct from that of *Anemone*, the chief distinction being that the former has feathery styles, while in the latter the styles are short and not conspicuously feathery. In the present work Bentham and Hooker's *Genera Plantarum* has been followed, in which the two genera are united under the name of *Anemone*.

A. Nemorosa, Linn. Sp. Pl. 541 (1753). *Wood Anemone*, *Wind-flower*.
Anemone nemorum alba, Ger. Em. 383 (1633). *Nemorosus Ranunculus*, Lobel. Ic. 673 (1581).

Top. Bot. 4. Syme, i. 12, t. 11. Baxt. t. 43. Nyman, 3. Fl. Oxf. 2.

Native. Sylvestral. Woods, hedgebanks, and bushy places, preferring slightly shaded places. Generally distributed and very abundant in the woods and coppices of the Oolite and the Chalk. P. Feb.-May.

First recorded by Dr. Noehden in *Mavor's Agr. Berks*, 1809.

Var. MULTIPLEX, Seringe, a double-flowered form, has been observed in Bagley Wood and other places. Var. PURPUREA, DC., *Fl. Fr.* v. 884 (1815); *E. B. Suppl.* 6, occurs frequently with the type, but the var. COERULEA, DC., l.c., with the flowers of a uniform pale blue colour (which occurs in Surrey), has not been observed by me in Berkshire. The leaves are frequently infested with *Puccinea anemonea*, which Dr. Hill in the *British Herbal*, 12, described as the eggs of a small winged insect. This fungus-infected leaf Dillenius figured and described in Ray's *Synopsis*, ed. 3, 124, as a new species of fern. The original leaf at one time was preserved in the Oxford Herbarium.

Baxter in *Phaenogamous Botany*, n. 43 (1834), says that 'a beautiful

little parasite, *Aecidium leucospermum*, DC., is not uncommon on the leaves, and sometimes on the flowers of this *Anemone* . . . especially in Bagley Wood.' Turner's description in the *Herball*, 1551, refers to *A. Nemorosa*; see note under *A. Pulsatilla*.

A. Nemorosa occurs in all the bordering counties.

The specific name *Nemorosa* is here spelt with a capital letter, because it was used in a generic sense by Ruppins and other pre-Linnean writers.

**** A. RANUNCULOIDES**, Linn. Sp. Pl. 541 (1753). *Yellow Wood Anemone*.

Nemorosa Ranunculus luteus, Lobel. Ic. 674 (1581). Cyb. Br. i. 75. Comp. Cyb. Br. 475. Syme, E. B. i. 13, t. 12. Nyman, 3. Fl. Oxf. 3.

Alien. Fields near Childrey Rectory, *Rev. G. F. de Teissier*, in *Fl. Oxf.* 1886. The Rev. C. I. Cornish informed me that it was cultivated in the rectory garden, from which it had doubtless escaped. It occurs as an escape from cultivation near Tubney.

**** A. APENNINA**, Linn. Sp. Fl. 541 (1753). *Blue Mountain Anemone*.

Cyb. Br. i. 75. Comp. Cyb. Br. 474. Syme, E. B. i. 12, t. 10. Nyman, 3. Baxt. t. 43. Fl. Oxf. 3.

Alien. In a copse near Shellingford [not Shillingford as given in Baxter] on the left hand in the lane from Hatford, after crossing the turnpike road; plentiful, *Mrs. Pearce*, in *Baxt. Phaen. Bot.* n. 43 (1834).

This species, like the preceding, has no claim to inclusion in our list of indigenous plants.

ADONIS, Linn. Gen. Pl. n. 618 (Dill. Gen. 4).

*** A. annua**, Linn. Sp. Pl. 547 (1753). *Pheasant's Eye*, *Red Maithes*.

A. autumnalis, Linn. Sp. Pl. ed. 2, 771 (1762). *A. aestivalis*, With. (not of Linn.). Cyb. Brit. iv. 80.

Top. Bot. 4. Syme, E. B. i. 14, t. 13. Baxter, t. 7. Nyman, 4. Fl. Oxf. 3. Colonist. Agrestal. Cornfields on a gravelly or chalky soil, local and rare. A. May.

First record. In the cornfields about Yattendon, Mr. Bicheno, in *Mavor's Agr. Berks*, 1809.

2. Ock. Near South Hinksey, *Lawson*, in *Herb. Oxf.* 1870.

3. Pang. Yattendon, *Bicheno*. Yattendon. Frilsham. I have once or twice met with it on the hill called Wayley at Hampstead Norris, *Lousley*, in *Russell's Cat.* Streatley, *Witts*, 1834, and *Pamplin*. Hampstead Norris, a solitary specimen, *Waterhouse*. Near Compton, *Mrs. Napier*.

4. Kennet. Lambourn Woodlands, *Mrs. Batson*.

5. Loddon. As a weed at Wargrave, rare, *Melville*.

The plant, as will be seen, is of very rare occurrence in Berkshire, and perhaps should be considered rather as a casual than a colonist. It has been found in a more or less naturalized condition in all the bordering counties.

In writing *A. annua*, the author has restored the earliest name for this plant in the binominal system, which was given to it in the first edition of

the *Species Plantarum* by Linnaeus. In the second edition of the same work he described as separate species *A. autumnalis*, and *A. aestivalis*, which were united in the *A. annua* of the preceding edition, but the name *A. annua* should have been retained for the former species. In accordance with the laws of nomenclature it is therefore used here; it has also the advantage of being more correct, since *A. annua* is a summer-flowering plant.

MYOSURUS, Linn. Gen. Pl. n. 355 (*Myosuros*, Dill. Gen. 4).

M. minimus, Linn. Sp. Pl. 284 (1753). · *Mouse-tail*.

Cauda muris, Gerard, 345 (1597). *Myosuron*, Dodoens (1553).

Top. Bot. 5. Syme, E. B. i. 15, t. 14. Baxt. t. 204. Nyman, 4. Fl. Oxf. 4. Native. Agrestal. Cornfields on gravelly or flinty soil, very local, but abundant where it occurs. A. April-July.

First record. Cornfields near Old Windsor, Rev. H. Davies, in *Bot. Guide*, 1805. In gravelly soil, common, Dr. Noehden, in *Mavor's Agr. Berks*, 1809.

2. Ock. Near Sandford, but on the Berkshire side of the river on a waste piece of ground, *Riddelsdell*, 1892. Near Wittenham, *Mrs. Young*. Near Upton, *Miss Fry*. Near Radley.

3. Pang. Beenham, very plentiful in one field between the village and Bradfield.

4. Kennet. Shaw, *Watson's Geogr. Distrib.* North Heath, *Russell's Cat.* First field on the Greenham Road from Newbury. Fields near Greenham Lodge, *Weaver*. Whittle fields, Speen, *Mrs. Cecil*, 1871. Between Newbury and the Wash, common. In a cornfield below Riever Wood. Near Theale. Near Ufton and between Ufton and Padworth, rather common.

5. Loddon. Cornfield near Old Windsor, *Davies*, l. c., and *W. A. Lewis*, in *Herb. Brit. Mus.* Cookham, *Hurst*, in *New Bot. Guide*. Near Finchampstead, *Penny*. Sandy fields, Sonning, *Tufnail*.

Young seedlings of *Scandix Pecten-veneris* have leaves very like those of *Myosurus*, which is found in all the bordering counties, Gloucestershire being rather doubtfully recorded.

RANUNCULUS, Linn. Gen. n. 619 (Tournefort, Inst. t. 149).

R. divaricatus, Schrank, Fl. Baier. ii. 104 (1789).

R. circinatus, Sibth. Fl. Oxon. 175 (1794). *Batrachium circinatum*, Spach, Phan. vii. 201 (1839). *B. divaricatum*, Wimmer, Fl. Schles. 10 (1841).

Top. Bot. 8. Syme, E. B. i. 16, t. 15. Nyman, 15. Fl. Oxf. 9.

Native. Lacustral. Ponds, canals, and streams; rather common and widely distributed. P. June-Aug.

First record. Sonning, *Mr. S. Rudge*, 1800, in *Herb. Brit. Mus.* Published by Mr. T. B. Flower in *Robertson's Env. of Reading*, 1843, which is

perhaps not a more definite record than the one given by Sibthorp in *Flora Oxon.* of 1794. It is quite possible that Merrett's plant, which is here referred to *R. Drouetii*, may have been this species.

1. **Isis.** Near Eynsham. Bablock Hythe. Not uncommon in the still shallow waters of the Thames. In the Canal near Shrivenham.
2. **Ock.** South Hinksey. Iffley Meadows. Kennington. Abundant in the Canal between Abingdon and Wantage. In ponds between Wantage Road Station and Stevenon. Marcham.
3. **Pang.** In the Thames near Streatley and Pangbourn. In the Pang near Pangbourn. Tilehurst.
4. **Kennet.** Frequent in the Kennet Canal. In the moat at Southcote. In the Kennet at Newbury, Hungerford, &c. In Aldermaston Lake. In the ponds at Hampstead Marshall. Benham. Theale, &c.
5. **Loddon.** Near Reading, *Flower*, l. c. Near Sonning, *Rudge*. Thames near Park Place, *Stanton*. Loddon near Sandford, *Salmon*. Medmenham, *Melwill*. Wargrave. Cookham. Arborfield, with a mud form in 1893. Windsor Great Park. Bray.

Ranunculus divaricatus appears to be a fairly constant species; it sometimes grows in running water with other species, but it still keeps its peculiar habit. The dry summer of 1893 caused the water in which it grew to evaporate, and it then assumed the mud form, the var. *terrestris* of Gren. & Godr. *Fl. Fr.* i. 25; it had much thicker, more succulent leaves, but none were more conspicuously entire than the rest. The flowers of *R. divaricatus* differ somewhat in size. In many Water Buttercups the earlier flowers are larger than those produced later in the season, but I have no notes as to whether this is the case in the present species. One year, when a continuous rainfall took place after the plant had begun blooming, so that the water level was much above the flowers, the plant continued flowering and perfected its fruit without completely opening its blossoms. The white ball-like flowers looked rather peculiar against the dark foliage when seen through a foot of water. This happened at Ferry Hinksey.

R. divaricatus is found in all the bordering counties.

In adopting the specific name *divaricatus*, which was proposed for the plant in 1789, and which has been adopted by Ascherson (*Fl. Brandenburg*), Grenier and Godron (*Flore de France*), Koch (*Syn. Fl. Germ.*), and many other botanists, the law of priority is followed though somewhat reluctantly. Sibthorp's name was the first binominal appellation given to the plant in Britain, and was taken from *R. aquaticus albus, circinctis tenuissime divisis foliis* of Ray's *Synopsis*, ed. 3, 249 (1724); it is attached in Sibthorp's handwriting to a specimen in the Sherardian Herbarium at Oxford. The oldest British specimen with which I am acquainted is Bobart's in the Oxford Herbarium, which was gathered probably near Oxford about 1680, and is labelled *Mille-*

folium aquaticum foliis abrotani ranunculi flore et capitulo, C. B. Pin. 141. A few botanists have doubted whether Schrank's plant is identical with that of Sibthorp.

R. trichophyllus, Chaix, in Vill. Hist. Pl. Dauph. i. 335 (1786).

R. aquatilis, Sibth. MS. et Herb. *R. capillaceus*, Thuill. Fl. Par. ed. 2, 278. *R. paucistamineus*, Tausch, in Flora (1834), 525. *Batrachium trichophyllum*, F. Schultz, Arch. (1847), 107. *B. pantothrix*, S. F. Gray, Nat. Arr. ii. 722 (1821).

Top. Bot. 7. Syme, E. B. i. 23, t. 21. Nyman, 15. Fl. Oxf. 10.

Native. Lacustral. Still shallow ponds, &c. Local. P. May-July.

First record. Pangbourn and Streatley, Rev. W. W. Newbould, about 1860. See Britten's Contr. 1871.

1. **Isis**. Near Oxford, Boswell. Near Shrivenham.

2. **Ock**. Little Hendred, Lomax. Abingdon, Druce, see Rep. of Bot. Rec. Club, 1881. Near Cumnor. Pond at back of Cumnor Hurst towards Besilsleigh. Marcham, rather frequent. A rather different form occurs in brackish water at Marcham. Kennington. In a pond on the Ridgeway, over 700 feet above sea level. Near Hanney. Didcot. Cholsey.

3. **Pang**. Pangbourn and Streatley, Newbould. In a pond near Tidmarsh. Near Basildon.

4. **Kennet**. Near Theale. Near Kintbury.

5. **Loddon**. Ponds at foot of Winter Hill, near Cookham, Britl. Contr. Wargrave, Melrill. Shinfield Green. Arborfield. In ponds at Ruscombe. In a pond near Shottesbrooke Church. Near White Waltham. In a pond between Wargrave and Stubbings Heath.

R. trichophyllus is not likely to be confounded with any other Batrachian Ranunculus except *R. Drouetii*, from which it can usually be distinguished by its darker-coloured and more rigid foliage, and by its rather smaller and more caducous flower. *R. trichophyllus*, though widely distributed, is not very common. Besides the typical submerged plant, it occurs in two forms, which appear to be dependent upon local conditions; namely,

Var. **TERRESTRIS**, Gren. & Godr. Fl. Fr. i. 24. ? *R. caespitosus*, Thuill. Fl. Par. ed. 2, i. 279.

This form occurred in the dry summer of 1893 on the muddy margin of a pond near Arborfield, and all gradations between it and the typical plant which occurred in the same pond could be traced. It had succulent leaves and very small flowers.

Var. **HETEROPHYLLUS**, Freyn, in Fl. Exs. Austr. Hung. n. 1705.

The second form, which is *R. trichophyllus* with floating leaves, occurred in the same pond at Arborfield, and has also been seen in

a ditch in a lane near Kennington. The plant with floating leaves has usually been referred by British botanists to *R. radians* of Revel in his *Ranunculus de la Gironde*, but Revel, in his *Essai de la Flore du Sud-Ouest de la France*, 101, says that his *radians* differs from *R. trichophyllus* by its floating leaves with non-caducous petals; its more elongated carpels, which are narrowed at the apex, are not swollen, and have a rather long beak. Willkomm and Lange, in *Prod. Fl. Hispan.* iii. 911, say that the variety with floating leaves, which may be confused with *R. confusus* and *R. Baudotii*, may be distinguished from them by the more hairy receptacle. Its conical, not globose, receptacle differentiates it from forms of *R. pellatus*.

R. trichophyllus has sometimes glabrous and sometimes hispid foliage. When growing in calcareous water it becomes encrusted, and the foliage is necessarily more rigid. When it grows in soft peat water the leaves are much more flaccid, so that they form a tassel when lifted out of the water, but even then they are shorter than typical *R. Drouetii*. The specific name was given on account of the hair-like leaf-segments.

The plant is recorded for all the bordering counties.

R. Drouetii, F. Schultz, Arch. Fl. Fr. et Allem. (1847), 10.

Batrachium Drouetii, Nym. in Bot. Notiser (1852), 98.

Top. Bot. 7. Syme, E. B. i. 22, t. 20. Nyman, 15. Fl. Ox. 10.

Native. Lacustral. Ponds, ditches, streams, &c. P. May-June.

First record. Probably the *Millefolium aquaticum cornutum*, Park. 1257, said in Merrett's *Pinax*, 78, 1666, to grow 'in the ditches of Oxford,' was this plant.

First certainly recorded by Mr. W. T. Dyer, in *Journ. Bot.* ix. (1871), 145.

1. Isis. Bablock Hythe, Dyer. Near Inglesham. Bourton. Wytham meadows.

2. Ock. Abundant in the meadows by the Thames near Sandford. Marcham. Didcot. Hagborne. Cholsey, abundant. Frilford. Letcombe. Ferry Hinksey. Near Hanney.

forma terrestris. This state occurred in a deep ditch near Wytham in the dry summer of 1893. The upper leaves were succulent, but not more entire than is usual. All gradations could be traced from this mud form to the ordinary plant. *R. Drouetii* is rather frequent in the Isis and Ock districts. It has a much more flaccid habit and lighter green foliage than *R. trichophyllus*, and the flowers are slightly larger. I have no notes of its occurrence in the remaining districts. It would be rather curious to find that it is limited to the area of the Oxford and Kimmeridge Clays. In Townsend's *Flora of Hampshire* it is recorded from West Woodhay, which is just outside our county boundary; but it is a little singular that Mr. Reeks has not recorded

R. trichophyllus, which I have seen in that neighbourhood. I am inclined to think that he has mistaken the one for the other.

R. Drouetii is found in all the neighbouring counties.

R. heterophyllus, [Web. ex] Wigg. Prim. Fl. Holsat. 42 (1780).

Batrachium heterophyllum, Fries, Summ. Veg. Scand. 140. *R. aquatilis*, L., and Index Kewensis.

Top. Bot. 6. Syme, E. B. i. 21, t. 19. Nyman, 16. Fl. Oxf. 12.

Native. Lacustral. Rivers, ponds, and brooks. Local. P. May-July.

First record. Pangbourn, Prof. C. C. Babington, in *Annals Nat. Hist.* ii. 16 (1855), 393.

1. **Isis**. In a small stream in the meadows under Wytham woods.

3. **Pang**. In the Thames at Pangbourn, *Babington*, l. c. Frilsham. Standford Dingley.

5. **Loddon**. Wargrave. Near Littlewick Green.

Probably I have often overlooked this plant, since the above are the only places from which I have specimens.

R. heterophyllus has been found in all the bordering counties.

In the Sherardian Herbarium at Oxford Sibthorp attaches a label of *R. heterophyllus* to a sheet of three specimens, one of which is *R. heterophyllus*, the second is a weak form of *R. peltatus*, and the third, which is labelled *R. hederaceus aquatilis flore albo*, Morison, is *R. Baudotii*.

In the *Student's Flora* Sir J. Hooker describes the carpels as usually glabrous; in the *Flora of Warwickshire* Mr. Bagnall says they are glabrous; while Dr. Boswell Syme says they are often hispid at the tip.

R. peltatus, Schrank, Baier. Fl. ii. 103, teste Boreau.

Batrachium peltatum, Presl, in Fl. Sic. i. 10, and Bercht. and Presl, Rostl. i. Ranun. 49. *R. floribundus*, Bab. Trans. Bot. Soc. Edin. v. (1858), 77.

Top. Bot. 6. Syme, E. B. i. 20, tt. 17 and 18. Nyman, 15. Fl. Oxf. 11. Native. Lacustral. Ponds, ditches, streams, &c. Common and generally distributed. P. April-August.

First record. *R. foliis capillaceis circumscriptione vaga brevioribus*, near Oxford, Sir Joseph Banks, in *Herb. Brit. Mus.* about 1760. *R. peltatus* is probably the plant referred to as *R. aquatilis*, Dr. Noehden, ponds, &c., *Mavor's Agr. Berks*, 1809.

1. **Isis**. New Bridge, *Boswell*. Buscot. Lechlade. Near Eynsham. Near Wytham.

2. **Ock**. Wantage. Lockinge. Abingdon.

3. **Pang**. Hampstead Norris, *Rogers*. Goring, *Boswell*. Compton, *Druce*, in *Rep. of Bot. Rec. Club*, 1886. Ilsley. Brickfields at Oare Common. Curridge. Bucklebury. Basildon. Tidmarsh. Marlstone. Tilehurst.

4. **Kennet**. Beedon and Beedon Common, mostly on mud and without floating leaves, *Rogers*. Hampstead Marshall. Alder-

maston. Burghfield. A pretty form occurs in Wigmoreash Pond on Gibbet Hill, at 912 feet elevation. In the Kennet near Newbury. Padworth. Snelsmore. Lambourn. Inkpen.

5. Loddon. Early, *Rudge, in Herb. Brit. Mus.* 1800. Wokingham, Watson. Hurst. A mud form from old moat in Whistley Park, Melvill. A robust form occurs in the ditch near Early Heath. A form approaching *R. truncatus* occurs in a pond at Early. Winkfield. Arborfield. Shurlock Row. In the Blackwater. Shottesbrooke. Spencer's Wood Common. Plentiful in Virginia Water. Near Wargrave. Near Cookham. Maidenhead. Binfield. Ruscombe.

Var. PSEUDO-PLUITANS, Syme, E. B. i. 20.

R. penicillatus, Bab. Man. Brit. Bot. ed. 7, 7 (1874). *Batrachium penicillatum*, Dumort. in Bull. Soc. Bot. Belg. vol. ii. (1863), 216. Syme, E. B. i. 20. Fl. Oxf. 11.

1. Isis. The marshy meadows about Oxford are intersected by numerous anastomosing branches of the Thames. In early summer these are often covered by dense masses of an aquatic Ranunculus bearing a profusion of large and handsome flowers. It seems to be a state of *R. floribundus*, Bab., without floating leaves, which is all I take *R. pseudo-pluitans* to be. *W. T. Dyer, in Journ. Bot.* ix. (1871), 145. Lechlade. Wytham, &c.
2. Ock. Abingdon Canal. Aston Tirrel. Kennington. Cholsey. Wantage. Blewbury.
3. Pang. Tidmarsh. Bucklebury. Standford Dingley. Pangbourn. Bradfield; also as a mud form in 1894. An abundant and freely flowering plant in the Pang.
4. Kennet. Hampstead Marshall. Newbury. Welford. Weston. Shefford. Bagnor. An abundant plant in the Lambourn.
5. Loddon. Sonning, *Rudge, in Herb. Brit. Mus.* 1800. Reading, French. Wargrave in the Thames, Melvill.

This is a common form of *R. pellatus*, and next to that is probably the commonest Batrachian. The long leaf-segments, which collapse into a tassel when taken out of the water, distinguish it from the type even when it produces floating leaves, which is not usually the case. It may be distinguished from *R. fluitans* by the more hispid receptacle, and by the leaf-segments, which are shorter and more numerous. Like the other Batrachians this plant also occurs as a mud form. The upper floating leaves when produced are different in outline from *R. pellatus*, being frequently more deeply cut into more irregular segments. Probably Mr. Dyer's plant was a young state of *R. pellatus*.

Ranunculus pellatus as here defined includes *R. floribundus*, Bab. in *Trans. Bot. Soc. Edinb.* v. (1858), 77, but which appears to be scarcely worthy of varietal distinction, since the characters of contiguous as

opposed to non-contiguous petals, and the peduncles not tapering instead of tapering, appear to be by no means constant. Babington's *R. floribundus* is not uncommon in Windsor Great Park and in many other localities. The variety or form *TRUNCATUS* (*Batrachium truncatum*, Dumort. in *Bull. Soc. Bot. Belg.* ii. 215) has the outer base of the lateral segments of the leaves much rounded. This is a common form. The variety which occurs in more swiftly running streams with very much longer flower-stalks and a more drawn-out habit is probably *R. elongatus*, F. Schultz, in *Billot*, i. 113.

The plant from Wigmoreash Pond has short, rather rigid leaf-segments, and is the var. *RIGIDUM*. See H. Beaudouin, in *Exc. Soc. Dauph. 2nd series*, n. 7.

The mud form, *R. aquatilis* var. *succulentus* of Koch's *Syn. Fl. Germ.* ii. (1837), 11, is also frequent, and sometimes, though rarely, has heterophyllous leaves.

R. peltatus, Schrank, is given, with a mark of doubt, by Syme as a synonym of *R. heterophyllus*. To me the differences which separate the two plants would be best expressed by making one a variety of the other.

R. peltatus, in one or other of its forms, is undoubtedly our commonest and most widely distributed Water Buttercup. Some of our quiet pools on the river are white with its blossom, and the same may be said of many of the ponds in the central part of the county. Its long trailing stems and masses of submerged leaves are conspicuous features in the Kennet, Lambourn, and other swiftly flowing streams. The plant is found in all the bordering counties.

By many authors this is taken as the type of *R. aquatilis*, Linn.

R. fluitans, Lam. Fl. Fr. iii. 184 (1778). *Water Buttercup*.

R. fluviatilis, [Web. ex] Wigg. Prim. Fl. Holsat, 42. *Batrachium fluitans*, Wimm. Fl. Schles. 9 (1841). *B. fluviatile*, S. F. Gray, Nat. Arr. ii. 722 (1821).

Top. Bot. 9. Syme, E. B. i. 17, t. 16. Nyman, 15. Fl. Oxf. 9.

Native. Lacustral. Rivers and swift streams. Locally abundant. P. June-August.

First record. *Ranunculus sive Polyanthemum aquatili albo affine Millefolium Maratrophylum fluitans*, J. B. River Ouse [Isis] about Oxford, plentifully, Ray's *Catalogus*, 260, 1670. The record is repeated on p. 250 in ed. 2 of the same work, 1677. *R. fol. capillaceus circumscriptione oblonga*, about Oxford, Sir Joseph Banks, 1770, in *Herb. Brit. Mus.*

1. Isis. In the Cole and the Upper Thames from Lechlade to Oxford.
2. Ock. Near Radley, Boswell. Plentiful in the Thames from Oxford to Sutton Courtney. In the Ock near Marcham.

3. **Pang.** In the Thames from Wittenham to Reading.

4. **Kennet.** In the Kennet near Theale, and also near Southcote.

5. **Loddon.** Sonning, *Rudge*, in *Herb. Brit. Mus.* Near Sandford Mill, *Melvill*. Henley, frequent, *Stanton*. Between Wargrave and Maidenhead in the Thames.

On the Upper Thames I have seen the plant produce floating leaves, when it is the var. *heterophyllus* of Clavaud, *Flore de la Gironde*, 21.

There appears to be more than one form of this plant; the flowers certainly vary in size. Perhaps the smaller-flowered plant may be *R. Bachii*, Wirtg. Verhandl. Preuss. Rh. ii. (1846), 12, which is described as having a more slender stem, almost sessile leaves, and narrower flowers. The unusually hot and dry summer of 1893 afforded another state of this plant which has been called var. *terrestris*, Godr. Mon. 29. Owing to the stream near Godstow being so much lower than usual, the plant grew out of the water on the mud; the segments of the leaves then became more succulent, shorter, and broader. Although the receptacle is often described as glabrous, in the young state it is usually hispid.

R. fluitans is a frequent and characteristic plant in the Thames; it occurs in all the bordering counties.

[**E. BAUDOTII**, Godr. in Mem. de l'Acad. de Nancy (1839), 21; Syme, E. B. i. 24, t. 22, is said to be found in Hants and Surrey.]

R. Lenormandi, F. Schultz, in *Flora* (1837), 727.

Batrachium Lenormandi, F. Schultz, Arch. Fl. Fr. et Allem. i. (1844), 70.

Top. Bot. 10. Syme, E. B. i. 28, t. 25. Nyman, 16. Fl. Oxf. 12.

Native. Inundatal. Paludal. Wet places in heathy districts, ditches, &c. Local and rather rare, confined to the south of the county. P. June–August.

First record. Bagshot Heath, Mr. H. C. Watson, in *Britten's Contributions*, 1871.

5. **Loddon.** Bagshot Heath, *Watson*. Roadside near Blackwater below Finchampstead, *Salmon*. Windsor Park, *Bolton King*. In a ditch near Bracknell. Near Swinley. Near Wokingham.

This species, distinguished from *R. hederaceus* by its larger flowers, which are five-, not three-nerved, has a very limited distribution in the county. It occurs, so far as at present known, only on the Bagshot beds.

It is found in Surrey, Hampshire, and Wiltshire.

[**E. TRIPARTITUS**, DC. Ic. Pl. Gall. Rar. 15, t. 49 (1808).

Batrachium tripartitum, S. F. Gray, Nat. Arr. ii. 721 (1821).

Top. Bot. 10. Syme, E. B. i. 27, t. 24. Nyman, 16.

A plant without flowers or fruit, which I gathered in a small stream between Bracknell and Wokingham, may belong to this species. If not, it

is *R. Lenormandi*, which, according to Willkomm and Lange, is distinguished by not having a hirsute receptacle.

R. tripartitus, which should be found in Berkshire, is recorded from Wilts, Hants, and Surrey.]

R. hederaceus, Linn. Sp. Pl. 556 (1783). *Ivy-leaved Water-Crowfoot*.

R. Hederaceus aquaticus, Park. 1216 (1640). *Batrachium hederaceum*, S. F. Gray, Nat. Arr. ii. 721 (1821).

Top. Bot. 2. Syme, E. B. i. 29, t. 26. Nyman, 16. Curt. Fl. Lond. iv. t. 39. Fl. Oxf. 12.

Native. Lacustral. Shallow streams, borders of ponds, wet places. Local, but widely distributed. P. Feb.-August.

First record. South Hinksey, Mr. Baxter's MSS. 1812. Given in Russell's Cat. 1839.

1. Isis. Faringdon.

2. Oak. South Hinksey, Baxter. Near Childswell Farm, Thurland. Didecot. Abingdon.

3. Pang. Standford Dingley. Near Bucklebury.

4. Kennet. Newbury. Stroud Green Pond, Weaver. Hampstead Marshall. Greenham. Mortimer. Sandford Priory. Enborne. Snelsmore. Between Aldermaston and Silchester. Bagnor.

5. Loddon. Early, Tufnail. Blackwater, Miss C. E. Palmer. Windsor Park, Ridley, in Herb. Brit. Mus. 1882. Near Wellington College, Penny. Sandhurst. Finchampstead. Arborfield. Risely. Ambarrow. Bulmarsh. Warren Row. Bearwood.

Var. *R. (H)OMIOPHYLLUS*, Tenore, Flora Napolitana, vol. iv. 338 (1830).

Batrachium hederaceum, var. *homoeophyllum*, Pryor, Fl. Hert. 12 (1887).

This variety, which is perhaps only the floating state of *R. hederaceus*, appears to be rare. I have only noticed it in the Loddon district, where it occurs near Wokingham. Near Arborfield. Near Long Moor. Near Finchampstead.

In the *Prod. Fl. Hispan.* Willkomm and Lange, l. c. 906, make this as a species distinct from *hederaceus*. They distinguish it by its more numerous carpels, which are about sixty in number (*R. hederaceus* has from twenty to thirty), by its floating and more robust habit, and by its much larger five-lobed leaves, of which the lobes are sometimes crenate. These distinctions, which are only those of degree, do not appear to me sufficiently marked to warrant the treating of the two plants as separate species. This plant differs from all the other Batrachian Buttercups except *R. tripartitus* in having none of the leaves cut into capillary segments. The much smaller flowers distinguish it from *R. Lenormandi*, and the leaves of the latter plant have not the dark markings which are generally present in *R. hederaceus*. Its glabrous receptacle distinguishes it from *R. tripartitus*.

The plant cannot be said to be common in Berkshire, and is probably absent from a considerable extent of country in the upland portions of the Pang and Kennet districts. In the lower parts of the Kennet valley it occurs more frequently.

R. hederaceus is recorded from all the bordering counties.

The Batrachian section of the genus *Ranunculus*, which is characterized by the carpels having transverse waved ridges and (so far as the British species go) white flowers, was kept as a distinct genus in my *Flora of Oxfordshire*, but in the present work I have followed Bentham and Hooker's *Genera Plantarum* in uniting them. The genus *Batrachium* has offered very considerable difficulties to the botanical student. The very different standard of specific limitation, which even British botanists have adopted, has not assisted to lessen the difficulty. It must be confessed that several of the so-called species appear to merge into each other, and that the differences which separate one from the other are rather questions of degree, than precise and definite characters. Again, I think that too much stress has been placed upon inconstant characters, such as the tapering of the peduncle, the relative length of the stamens and style, and perhaps the greater or slighter contiguity of the petals, and especially upon the presence or absence of floating leaves. The latter character, which is almost entirely artificial, was adopted by Mr. Hiern for the purpose of separating the genus into groups, with it is to be feared very unfortunate results, so far as pointing out the natural grouping of the plants in question was concerned. It must be borne in mind that aquatic plants are subject to conditions which greatly increase the tendency to vary present in the majority of species. Owing to the wide distribution of the Batrachian *Ranunculi* under a great variety of circumstances—in muddy ponds, in still quiet waters, in swiftly running streams, in deep waters or in shallow brooks, the water of which may be nearly free from inorganic salts, or heavily charged with lime, or brackish from salt, and which may be of varying depth and temperature—it is not at all surprising to find extreme variability, especially in leaf shape, throughout the genus. At one extreme we have in *R. hederaceus* a species with leaves only of one kind, and these nearly entire. At the other extreme we have in *R. divaricatus* a species also with only one kind of leaves, but these all submerged and cut into a number of filaments arranged in one symmetrical plane. Yet but few botanists would be now content to group all the varying intermediate forms under one species as *R. aquatilis*. In my arrangement of the Batrachian genus I have tried to hit the golden mean, but I am now rather afraid that my estimate of the number of species has been too generous. The authors of *Prod. Fl. Hispanicae* and other important continental authorities unite *R. pellatus* and *R. heterophyllus* under one species, and there is much to be said in support of such a view. The affinities of *R. trichophyllus* and *R. Drouetii* are closer than I formerly supposed. It would be interesting to learn if the two plants are ever found together, or whether the former is confined to water which has but little hardness except what is due to the presence of silica or which has flowed through peaty soil, and the latter to water which contains a large amount of dissolved lime. Herbarium specimens are rarely satisfactory, partly from the imperfect state in which they are preserved.

R. sceleratus, Linn. Sp. Pl. 551 (1753). *Celery-leaved Buttercup*, Marsh Crowfoot.

R. palustris rotundifolius, Ger. Em. 962 (1633). *Scelerata*, Apul. (1528).

Top. Bot. 14. Syme, E. B. i. 31, t. 27. Nyman, 14. Fl. Oxf. 8.

Native. Paludal. Pools, muddy ditches, &c. Locally common and widely distributed. A. May–September.

First record. *R. sceleratus*, Dr. Noehden, *Mavor's Agr. Berks*, 1809.

1. **Isis.** Carswell, *Miss M. Niven*. Colleshill. Faringdon. Cumnor. Deancourt.
2. **Ock.** Ferry Hinksey, *Ridley*. South Hinksey, *Baxter*. Woolstone, *Bellamy*. Marcham, *Walker*. (Abundant there in 1891.) Abingdon. Steventon. Uffington. Hagborne. Cholsey. Aston Tirrel. Radley. Kennington. Sutton Courtney.
3. **Pang.** Bradfield. Tidmarsh.
4. **Kennet.** Newbury, *Russell's Cat*. Weston. Southcote. Calcot Mill. Aldermaston. Newbury. Theale.
5. **Loddon.** Twyford, *Boswell*. Near Sandhurst, *Penny*. Windsor, *Bolton King*. Near Hurley. Boulney, *Stanton*. Blackwater. Loddon Bridge, a small form. Bray. Winkfield. Hurst. Whistley Green. Bracknell. White Waltham. Shottesbrooke, abundant. Ruscombe.

The plant is by no means uncommon in Berkshire, and is especially frequent on the muddy margins of ponds and streams in low-lying districts. It is usually glabrous, especially as regards the lower leaves, but a small-flowered plant which grew near Loddon Bridge had the lower leaves pubescent; the form *pubescens*, Corb. in *Magnier. Scrinia*, 1893. In the dry year 1893 *R. sceleratus* was often much dwarfed (the so-called variety *minimus*, S. F. Gray, *Nat. Arr.* ii. 718). In wet years I have seen it almost entirely submerged (the var. *submersus*, S. F. Gray, l.c.); in this state the leaves bear much resemblance to those of the Batrachian *Ranunculi*, with which group this plant forms a link.

R. sceleratus occurs in all the bordering counties.

R. Flammula, Linn. *Sp. Pl.* 548 (1753). *Lesser Spearwort*.

R. flammeus minor, Ger. *Em.* 961. *Flammula Ranunculus*, Dodoens (1616).

Top. Bot. 11. Syme, E. B. i. 33, t. 29. Nyman, 13. Fl. Oxf. 6–7.

Native. Paludal. Heaths, bogs, watery places. Rather local, but common where it occurs. P. April–Sept.

First record. Sonning, Mr. S. Rudge, 1800, in *Herb. Brit. Mus.* Unlocalized in *Russell's Cat.* 1839.

1. **Isis.** Wytham. Near Faringdon. Appleton.
2. **Ock.** Powder Hill Copse, *Sister Jane Frances*. Radley, *Garnsey*. Near Sandford Lasher. Bagley Wood. Boar's Hill. Frilford Heath. Cothill. Wootton. Abingdon.
3. **Pang.** Cold Ash Common. Ridge Wood (a form somewhat like *R. ophioglossifolius*). Bucklebury.

4. **Kenet.** Greenham Heath, *Rupert Jones*. Burghfield (large form with small flowers). Hampstead Marshall. Inkpen Common. Sandleford Priory. Benham. Snelsmore. Aldermaston. Very fine on Tilecombe Green. Kintbury.
5. **Loddon.** Cookham Dean, &c., *Mill*. Park Place. Remenham. Crazy Hill. Warren Row, *Stanton*. Risely. Abundant about Wellington College and Blackwater. Finchampstead. Bearwood. Bulmarsh. Virginia Water. Windsor Great Park. Bray. Sunningdale. Easthampstead. Swinley. Bracknell. Wokingham, &c. Bowsey Hill. Warren Row (luxuriant).

R. Flammula is a most variable species; among the forms which occur are—

Var. **LATIFOLIUS**, Wallr. Sched. Crit. 289; a luxuriant plant with large leaves and flowers, often mistaken for *R. Lingua*. It has been seen in Bagley, Fence Woods, Knowl Hill, &c.

Var. **OVATUS**, Pers. Syn. ii. 102; a plant with cordate leaves and small flowers has been seen at Bagshot Heath, &c.

Var. **SERRATUS**, Gaudin, Fl. Helv. iii. 540. *R. flammeus serratus*, Ger. Em. 962, is not uncommon.

Var. **TENUIFOLIUS**, Wallr. l. c., is a small creeping variety, sometimes found on the margins of ponds in heathy districts, as near Bracknell. (This name antedates var. *pseudo-reptans*, Syme.) It is doubtful whether this is a permanent variety.

A large-leaved, small-flowered plant, which occurred near Burghfield and in Fence and Ridge Woods, is rather similar to *R. ophioglossifolius*, but may be known from it by the absence of tubercles on the carpels.

R. Flammula occurs in all the bordering counties.

[**R. OPHIOGLOSSIFOLIUS**, Vill. Hist. Pl. Dauph. iii. 731; Syme, E. B. i. 32, t. 28; Nyman, 14, has been recorded from Hants, but requires confirmation; it has also been recorded from Gloucestershire, but I am informed that it is now extinct in the only known station for it in that county.]

R. Lingua, Linn. Sp. Pl. 549 (1753). *Great Spearwort*.

R. flammeus major, Ger. Em. 961. *Lingua*, Pliny. *R. platyphyllus*, Thal, Sylv. Herc. (1588).

Top. Bot. 2. Syme, E. B. i. 35, t. 31. Nyman, 13. Fl. Oxf. 6.

Native. Paludal. River-banks, marshes, and ditches. P. Local and rare. July–August.

First record. *R. Lingua*, Mr. Baxter in *Purt. Midl. Fl.* 51, 1821.

1. **Isis.** Near Godstow. Under Wytham woods in the Thames meadows.

2. **Ock.** In a watery ditch between Folly Bridge and the Tollgate, *Baxter*, l. c. (Extinct.) Abingdon meadows, *Eoswell*. Meadows

between Radley and Abingdon, where it occurs in considerable quantity.

4. Kennet. Found in a watery, boggy place at Hoe Benham, growing with *R. Flammula*, Miss Bowen. (I have not seen specimens.)
5. Loddon. Cookham by the water called the Strand, Mill.

The rarity of this plant in the marshy meadows near Oxford and the Kennet valley is remarkable.

Hooker describes the plant as glabrous; but some plants near Abingdon are distinctly hairy (var. *hirsutus*, Wallr. Sched. Crit. 288), and in most cases the leaves have hairs, which are closely adpressed.

In the *Flore du Centre de la France* of 1857, Boreau pointed out that the radical leaves which are produced under the surface of the water have long peduncles, and are cordiform-oval in shape.

R. Lingua does not appear to be recorded for East Gloucester, but it occurs in the other bordering counties.

R. acris, Linn. Sp. Pl. 554 (1753). *Buttercup, Meadow Crowfoot.*

R. pratensis erectus acris, C. B. Pin. 178.

Top. Bot. 13. Syme, E. B. i. 37, t. 33. Nyman, 12. Baxt. t. 302. Fl. Oxf. 5.

Native. Pratal. Meadows and pastures, abundant and generally distributed. P. April-August.

First record. *R. acris*. Very common in meadows and pastures, *Mavor's Agr. Berks*, 271 (1809). Under the above name we have in Berkshire a varying series of forms.

Var. **STEVENI** (Andrz. in Bess. Enum. Pl. Volh. 22 (1821), as a species).

This is our common Meadow Buttercup, and when typical may be recognized from other forms of *R. acris* by its long fleshy rhizome, covered above with the remains of the bases of former petioles. The leaves are covered with shining pubescence. The form of this which is more common with us, if indeed it be not the only one, is the plant described as *R. vulgaris*, Jord. in Boreau, Fl. du Centre Fr. 15 (1857).

Var. **BORAEANUS** (Jord. Obs. Pl. Crit. 6 (1847), 19, as a species).

This is the true *R. acris* as restricted by Austrian botanists, and is distinguished by its stout, compact, erect, and premorse rhizome, the offshoots of which are sessile or connected only by a short perpendicular sobole.

With us in the north of the county this is comparatively a rare form; but it is more frequent in the light soils of the south. It occurs in the Ock district near Frilford and in the Loddon district about Loddon Bridge, near Farley Hill, at Arborfield, near Finchampstead, Swinley, Ascot, &c. It has the leaves cut into narrower segments than *R. Steveni*, and is a rather more graceful plant. Prof. A. Kerner von Marilaun, to whom I am indebted for the above description, says in

the *Schedae ad Floram Exsicc. Austro-Hungaricam*, 44 (1888), that little value can be placed on characters drawn from the form of the divisions of the leaves, or from the presence or absence of hairs on the stems or petioles. In spring they may be glabrous and the divisions of the leaves narrow, while in the autumn the stem and petioles may be hairy and the leaf-segments may be broad. We have a third form in our Thames meadows in which the rhizome is shorter and not so horizontal. I may say that Herr Freyn of Prague, Prof. A. Kerner, and Dr. R. von Wettstein have agreed as to my plant from Loddon Bridge being the true *R. acris*.

The Meadow Crowfoot, which is generally distributed in Great Britain, is a great ornament of our meadows and pastures in spring.

R. repens, Linn. Sp. Pl. 554 (1753). *Creeping Buttercup, Crowfoot.*

R. pratensis repens, Park. 329. Creeping and Thames Crowfoot, Pet. Herb. Brit. xxxviii. 7 and 8.

Top. Bot. 13. Syme, E. B. i. 40, t. 34. Nyman, 11. Curt. Fl. Lond. iv. t. 38. Fl. Oxf. 5.

Native. Agrestal, &c. Common and generally distributed, except on the grassy chalk downs and in the heathy districts of the Bagshot Sands. P. May–August.

First record. *R. repens*, Mavor's Agr. Berks, 1809.

Two fairly marked forms of the plant are found, namely—

Var. **ERECTUS**, DC. Syst. i. 285, is almost destitute of runners, and is a tall robust plant; this is probably the var. *suberectus*, Gaud. Fl. Helv. iii. 547. It is the *R. hirsutus* of Beesley's *History of Banbury*, cited in my *Oxfordshire Flora*, and probably of Dr. Noehden.

Var. **PROSTRATUS**, Gaud. l. c., is the prostrate creeping plant which is so abundant by river-banks and in cornfields. Both forms vary from nearly glabrous (var. *glabratus*, DC. Syst. i. 285) to densely hairy. The very hairy erect plant with runners is the var. *villosiusculus*, Gaud. l. c. Mr. Warde Fowler of Lincoln College brought me a specimen gathered near Oxford which had two of the sepals reflexed; *R. Caley-anus*, Don, Gen. Syst. i. 37, has all of them reflexed.

R. repens is frequent in waste ground, cornfields, ditch and river-banks, garden ground, and roadsides in Berkshire and the bordering counties.

R. bulbosus, Linn. Sp. Pl. 554 (1753), and of Thal. *Buttercup. Buttercresses.*

R. tuberosus, Dodoens, Pempt. 431.

Top. Bot. 13. Syme, E. B. i. 41, t. 35. Nyman, 13. Fl. Oxf. 6.

Native. **Pascual.** Very common in meadows and pastures through-
preferring sunny situations. P. March–July.

First record. *R. bulbosus*, *Mavor's Agr. Berks*, 1809. Common in all the pastures at Hampstead Norris and in the Vale, Mr. Lousley in *Russell's Cat.* 1839.

It is possible that the manuscript note by Wm. Browne, which is contained in the Magdalen College copy of [How's] *Phyt. Brit.*, may refer to a form of *R. bulbosus*: '*Ranunculus pumilus floribus deciduis*. The whole plant seldom exceeds three inches in compass and in his full strength of flowering is not above an inch or two high. Amongst a hundred plants of them I found not far from Oxford, though it was in ye time of their flowering, I could not find one with a whole flower, several of them had three, four, or five little yellow leaves of flowers about a small thrum of yellow pointalls and every plant had fresh yellow pointalls, with the leaves as it were new fallen off.' The date of this record would be about 1652.

The dwarf form with very hairy leaves and one-flowered stem, which I have from Loddon Bridge, &c., is the var. *parvulus*, Clavand. The flowers are occasionally double; I found an example near Marcham. When growing in very barren soil the leaves are more deeply cut, the *R. brachiatus*, Schleicher, *Cat. Pl. Helv.* ed. 3, 24).

R. bulbosus, which is found in all the bordering counties, occurs on the top of Gibbet Hill, which is 950 feet above sea level.

R. auricomus, Linn. *Sp. Pl.* 551 (1753), and of Gerard. *Goldilocks*, *Wood Crowfoot*.

Top. Bot. 12. Syme, *E. B. i.* 36, t. 32. Nyman, 12. *Fl. Oxf.* 5.

Native. Sylvestral. Septal. Woods, hedgerows, &c. Locally common and widely distributed in shady sylvan situations. P. April-May.

First record. *R. auricomus*. [About Marlow.] Mr. G. G. Mill in *Phyt. i.* (1843), 983, and by Mr. T. B. Flower in *Robertson's Env. of Reading*, 1843.

1. *Isis*. Buckland. Pusey, *Boswell*. Tubney. Cumnor. Buscot. Wytham. Appleton Lower Common, &c.
2. *Ock*. Marcham, *Walker*. Denchworth, *Wait*. Bagley. Besils-leigh. Wittenham. Lockinge. Wantage. Pusey. Sunningwell. Boar's Hill, with quite perfect flowers.
3. *Pang*. Bradfield, *Jenkinson*. Streatley, *Pamplin*. Yattendon. Frilsham. Englefield. Unwell Wood. Ashampstead Common. Bucklebury. Basildon. Sulham, &c. At Bradfield it grew in the Park on almost bare ground under trees; the flowers were large and had perfect petals. It may be the var. *grandiflorus*, Reichb.
4. *Kennet*. Near Reading, *Flower*. Thatcham, *Jackson*. Wickham. Welford. Curridge. Hungerford. Chilton Foliat. Kintbury. Aldermaston. Burghfield. W. Ilsley, &c.

5. Loddon. Park Place. Bowsey Hill, *Stanton*. Near Marlow, *Mill*, l. c. Wellington College. Bowsey Hill. Wargrave. Maidenhead Thicket. Windsor Park. Cookham Dean. Swinley. Farley Hill. Risely, &c.

Var. *APETALUS*, Wallr. in DC. Prod. i. 34 (1824), which is probably the same plant as var. *depauperata*, Hook. Stud. Fl. 7 (1870), is also common in suitable situations in all the districts. The more usual form has one or more of the petals perfect.

Var. *INCISIFOLIUS*, Reichb. Ic. Fl. Germ. et Helv. iii. t. xii, f. 4599 (as *incisifolia*). A slight variety occurs in some of the more shady localities, as in Bagley Wood, Wytham, &c.

R. auricomus, the flowers of which are of a deeper golden tint than those of *acris* or *bulbosus*, is widely distributed in Berks, but is rare in the higher chalk downs, and is indeed absent from a considerable stretch of them, and from the dry heaths in the south of the county. It occurs in all the bordering counties.

R. sardous, Crantz. Stirp. Austr. fasc. 2. 84 (1763).

R. secundus vel sardous, Cordus. *R. hirsutus*, Curt. Fl. Lond. ii. t. 40 (circa 1778). *R. philonotis*, Ehrh. in Hannov. Mag. (1783) 270.

Top. Bot. 14. Syme, E. B. i. 43, t. 36. Nyman, 14. Fl. Oxf. 7.

Native. Inundatal. Pond-sides. Very local and rare. A. or B. May-August.

First record. *R. hirsutus*. Moist clayey places, Dr. Noehden in *Mavor's Agr. Berks*, 1809.

4. Kennet. Elcot. Kintbury, *Reeks*, in *Britt. Contr.* 1871. Stroud Green, Jackson.

5. Loddon. Blackwater Lane near the Ford, and elsewhere near Wellington College, *Penny*.

Probably Dr. Noehden's record was a mistake for one of the other species. Either this plant has decreased in the Midlands, or, what is more probable, the localities given for it in the older floras were often erroneous. The plant recorded as *R. hirsutus* by Mr. A. Beesley from Banbury in *Fl. Oxf.* I find is represented in his herbarium by a specimen of the upright hairy form of *R. repens*.

R. sardous occurs in Hampshire, Wiltshire, and Surrey. If it ever occurred in Oxfordshire it is now probably extinct.

In Beck's *Flora Nieder-Österreich*, i. 421 (1892), the British plant is made var. *hirsutus* (Curtis) of *R. sardous*. Beck considers *R. sardous* to be identical with *R. pseudo-bulbosus*, Schur, which differs from our British plant in having the tubercles on the achenes nearly or quite obsolete. If the Sardinian plant is identical with ours, it would appear that its name according to strict priority should be *R. parvulus*, Linn. var. *sardous* (Crantz).

R. parviflorus, Linn. Syst. ed. 10, 1087 (1758).

R. hirsutus annuus foliis Geranii Columbini, Merrett's Pinax, 102 (1666).

Top. Bot. 14. Syme, E. B. i. 45, t. 37. Nyman, 14. Fl. Oxf. 8.
Native. Glareal. Dry, sunny banks, wood-ridings on sandy soil.
Local and rare. A. May-June.

First record. *R. parviflorus*. Between Botley and Eynsham, Mr. Baxter, MSS. and *Walker's Flora*, 1833.

1. *Isis*. Between Botley and Eynsham, *Baxter*, 1812 (now probably extinct). Wytham Wood.
2. *Ock*. Abingdon Road, near Oxford, *Walk. Fl.* (now extinct). Happy Valley, *E. F. Linton*. Cumnor Hill, *Boswell* (not recently seen). It was rather frequent in Bagley Wood in 1884, and has been seen there in most years since.
3. *Pang*. Near Bradfield, *Jenkinson*.
5. *Loddon*. Rather plentiful on Pinkney's Green near Maidenhead and on Winter Hill; and as the var. *parvulus*, *Clavaud*.

Obs. It is possible that the record by Browne of *R. pumilus floribus deciduis* may refer to a form of this species, i.e. the var. *subapetalus*, Gren. et Godr. Fl. Fr. i. 37, in which the petals are much shorter than the calyx, and sometimes abortive, which I have seen at Wytham.

R. parviflorus is found in all the bordering counties, but it is a rare plant in Oxford and Bucks, and apparently decreasing.

R. arvensis, Linn. Sp. Pl. 555 (1753). *Corn Buttercup*, *Devil's Coach-wheel*.
R. arvensis echinatus, C. B. Pin. 179. *R. arvorum*, Gerard, 805.

Top. Bot. 15. Syme, E. B. i. 46, t. 38. Nyman, 13. Fl. Oxf. 7.
Colonist. Agrestal. Cornfields, locally abundant and widely distributed. A. April-August.

First record. *R. arvensis*. Corn Crowfoot, *Mavor's Agr. Berks*, 1809.

1. *Isis*. Near Coleshill. Shrivenham. Faringdon. Pusey. Cumnor. Wytham.
2. *Ock*. Moreton, *Sister Jane Frances*. Marcham, *Walker*. Boar's Hill. Wootton. Letcombe. Wantage. Blewbury. Steventon. Tubney. Besilsleigh. Radley. Drayton. Didcot. Wittenham.
3. *Pang*. Streatley, *Boswell*. Basildon. Tilehurst. Pangbourn. Bradfield. Moulsoford. Hampstead Norris. Marlstone. Bucklebury. Very abundant in some of the fields in this district.
4. *Kennet*. Kintbury, *Hewett*, in *Herb. Brit. Mus.* 1840. Newbury, *Russell's Cat.* 1839. Shefford. Lambourn. Riever Wood. Hungerford. Shalbourn. Newbury. Theale. Padworth. Upton. Burghfield.
5. *Loddon*. Rubbish-heap near Finchampstead Church, *Penny*. Hurley. Bisham. Maidenhead. White Waltham. Wargrave. Old Windsor. Wellington College.

On a rubbish-heap at Grandpont near Oxford the variety *inermis*, Koch, Syn. Fl. Germ. 16, occurred with other foreign casuals.

R. arvensis occurs in all the bordering counties.

R. Ficaria, Linn. Sp. Pl. 550 (1753). *Pilewort, Lesser Celandine.*

Ficaria, Brunnfels (1530). *Chelidonium minus*, Ger. Em. 816. *Ficaria verna*, Huds. Fl. Angl. 214.

Top. Bot. 11. Syme, E. B. i. 47, t. 39. Nyman, 7. Fl. Oxf. 5.

Native. Septal. Damp places, woods, brook-sides, hedges, banks, open fields, and under trees in parks, &c. Common and generally distributed except on the chalk downs and dry heaths. P. March-June.

First record. *R. ficaria*, Mavor's Agr. Berks, 1809. Kintbury (Mr. W. Hewett, 1840), in Herb. Brit. Mus.

R. Ficaria is very variable both in the size of its flowers and in the shape of its leaves. F. Schultz in the *Archives de Flora* (1855), 122, described two varieties: var. *DIVERGENS*, F. Schultz, l. c., which is our common form, and is distinguished by the lobes of the lowest leaves not overlapping at the base; but all gradations are found between this and the next form, the var. *INCUMBENS*, F. Schultz, in which the lobes of the lower leaves overlap at the base; fine specimens have been seen at Kintbury, and it is not uncommon in damp shady places. A third form occurs in which the leaves are constantly more elliptical in shape, as at Wytham, near Basildon, &c. This approaches *Ficaria ambigua*, Boreau, Fl. du Centre Fr. ed. 3, 20.

In dry and rather barren ground another form is found which produces pale yellowish tubers from the axils of the branches above the soil. The margins of the leaves of *R. Ficaria* vary from sharply angled to crenate. The plant rarely produces ripe seed, but I have seen fruiting specimens in Swinley woods; in these specimens the flowers were very small, with very narrow petals, and the leaves had divergent lobes. Specimens were sent to the Bot. Exch. Club in 1895. Fruiting plants have also been found on Boar's Hill and elsewhere. In my opinion *Ficaria* should form a distinct genus in our British Floras as the arrangement of petals and sepals is essentially different from that of *Ranunculus*.

R. Ficaria is found in all the bordering counties.

CALTHA, Linn. Gen. Pl. n. 623 (*Populago*, Tournefort, Inst. t. 145).

C. palustris, Linn. Sp. Pl. 558 (Gesner, 1561). *Marsh Marigold, Kingcups.*

C. palustris vulgaris simplex, Park. 1213. *Chamaeleuce*, Pliny.

Top. Bot. 15. Syme, E. B. i. 50, t. 40. Baxt. t. 153. Nyman, 18. Fl. Oxf. 13.

Native. Paludal. River-sides, wet meadows, marshes, &c. Common and generally distributed in the valleys of the county. P. March-June.

First record. *C. palustris*. Too common in moist meadows, from which they should be eradicated, Mavor's Agr. Berks, 1809.

This plant varies greatly in the manner in which the margin of the leaf is cut from roundly and obscurely crenate to acutely angled. Continental botanists have made several varieties and species out of the *Caltha palustris* of Linnaeus.

Var. *GUERANGERII* (Boreau in Billot. Adnot. (1855), 11 as a species). In this variety the sepals are oblong-oval, so that when the flowers are fully expanded the sepals are not contiguous. The carpels are spreading, with the beak longer than in *palustris*. It has been noticed near Deancourt in the Isis district, near Little Hendred in the Ock district, by Basildon in the Pang, and at Wargrave in the Loddon district. It may be well to observe that the flowers of ordinary *C. palustris*, which are produced later in the season, have usually narrower sepals than those produced earlier in the season, so that the late-flowering plant is sometimes mistaken for the variety *Guerangerii*, which is the *Caltha cornuta*, of Schott, *Analect. Bot.* 31, according to Beck's *Fl. Nieder Österreich*. In this form the mature follicles are gradually narrowed towards the apex into the beak, which is curved and in the upper part somewhat hooked. In true *C. palustris* the mature follicles are very shortly and very often abruptly attenuate-contracted into the beak, and the follicles curved on the back. Another variety or subspecies is the *Caltha laeta*, Schott, l.c., in which the follicles are nearly or quite straight on the back, but this has not yet been observed in Berkshire.

Caltha is one of the chief adornments of our meadows in early spring, and is found in all the bordering counties.

HELLEBORUS, Linn. Gen. Pl. 622 (Tournefort, Inst. t. 144).

H. foetidus, Linn. Sp. Pl. 558 (1753). *Stinking Hellebore, Tetter Wort, Bear's-foot.*

Top. Bot. 16. Syme, E. B. i. 58, t. 45. Baxt. t. 103. Nyman, 17. Fl. Oxf. 12.

Denizen or possibly native. Sylvestral. Local and rare. P. Feb.-April. First record. *Helleborastrum*. Grows in a pasture close upon Botley Hill, MS. in *Lyte's Herball*, 1660 (possibly this may have meant the next species), published as *H. foetidus* (unlocalized) by Mr. T. B. Flower, in *Robertson's Env. of Reading*, 1843.

1. **Isis.** Buckland, *Boswell*.

2. **Ock.** Botley Hills, MS. in *Lyte* (not there now).

3. **Pang.** Near Basildon, *Waterhouse*. In this locality, which is a rather open planting on the chalk downs, it has the appearance of a native plant.

5. **Loddon.** Windsor, *Dyer*, *Phyt. N. S.* v. 528. Rose Hill, Park Place, *Stanton*.

Helleborus foetidus is recorded for all the bordering counties.

H. viridis, Linn. Sp. Pl. 558 (1753). *Bear's-foot, Wild Black Hellebore.*
H. niger hortensis flore viridi, Ray, Syn. 271. *Helleborastrum*, Gerard, 825.
 Top. Bot. 16. Syme, E. B. i. 56, t. 44. Nyman, 17. Fl. Oxf. 12, 13.
 Denizen or native. Sylvestral. Woods and bushy places, rare. P.
 March-May.

First record. Newbury, *Mr. Sheffield's MS.* 1790, in *Oxf. Bot. Lib.* Published by Mr. J. Lousley in *Russell's Cat.* 1839.

2. **Ock.** Near Pusey, *Miss M. Niven.*

3. **Pang.** Tidmarsh near Pangbourn. Beechwood, Hampstead
 Norris, *Lousley, l.c.* Beechwood, Wood's Farm, Ilsley, *Hewett's*
Hist. Near Basildon.

4. **Kennet.** Near Newbury, *Sheffield MS.* Near Enborne, *Weaver.*

Our plant is the var. *occidentalis* (Reuter, *Cat. Grain.* 1868 [see Schiffn. Mon. Helleb. 138], as a species), Druce, in *Journ. Bot.* (1890) 227. It appears to be the common western form, chiefly differing from the type in being glabrous.

H. viridis, var. *occidentalis* occurs in all the bordering counties, and is undoubtedly native in Oxford and Bucks.

HELLEBOROIDES, Adans, Fam. ii. 458 (1763).

**** H. HYEMALE**, Kuntze, Rev. Gen. Pl. 3 (1891). *Winter Aconite.*

Eranthis hyemalis, Salisb. in Linn. Soc. Trans. viii. (1807) 303. *Helleborus hyemalis*, Linn. Sp. Pl. 557 (1753).

Comp. Cyb. Br. 477. Syme, E. B. i. 55, t. 43. Nyman, 18. Fl. Oxf. 13.

Alien. Plantations, parks, &c. Rare, and never as a native plant. P. Jan.-March.

2. **Ock.** Bagley Wood, *Crawley*, 1889 (still there in 1895, but evidently the remains of a garden). Marcham, *Walker.* Hedge-bank, Challow, near Wantage (no garden near), *Whitwell.* Besilsleigh. Sunningwell,

4. **Kennet.** Park-like meadows, Burghfield, *Tufnail*, in *Fl. Oxf.*

The Winter Aconite is only an escape from cultivation in Britain.

Since Bentham and Hooker admit the genus *Mniodes* into the *Genera Plantarum*, logically we appear bound to admit Adanson's name of *Helleboroides* for the above plant, as proposed by Kuntze.

AQUILEGIA, Linn. Gen. Pl. n. 605 (Tournefort, Inst. t. 242).

A. vulgaris, Linn. Sp. Pl. 533 (1753). *Columbine.*

A. coerulea, Gerard, 935. *A. sylvestris*, C. B. Pin. 144. *Aquilina*, Matth. et Lobel (1576).

Top. Bot. 17. Syme, E. B. i. 60, t. 46. Nyman, 18. Baxt. t. 221. Fl. Oxf. 14.

Native. Sylvestral. Woods and thickets and rarely in marshes. Local. P. May-July.

First record. *A. vulgaris.* Dr. Noehden and Mr. Bicheno in *Mavor's Agr. Berks*, 1809.

1. **Isis.** Pusey Wood, *Boswell*. Appleton Lower Common. Wytham Wood.
2. **Ock.** In a wood near Besilsleigh, *Baxter*. Fyfield, *Miss F. M. Parker*. Tubney, *Walker*. Cothill. Bagley Wood.
3. **Pang.** Common in some of the woods about Hampstead Norris, particularly in Beechwood, *Lousley in Russell's Cat.* Ilsley Warren. Hermitage, *Lousley in Hewett's Hist.* Ilsley Warren, *Hewett*, 1838, in *Herb. Brit. Mus.* Wood near Streatley, *Baxter and Pamplin*. Tilehurst, *Holland*. Unwell Wood. Bucklebury.
4. **Kennet.** West Woodhay, *Bicheno in Mavor*, l. c.
5. **Loddon.** Bisham Wood and moist woods generally [near Marlow], *Mill*. Wargrave, introduced, *Britt. Contr.* Bulmarsh, *Holland*. Long Moor, not native.

The flowers are usually blue, but flowers of a chocolate brown and white have also been noticed.

Aquilegia vulgaris, which is certainly native in Berkshire, is recorded from all the bordering counties.

DELPHINIUM, Linn. Gen. Pl. n. 602 (Tournefort, Inst. t. 241).

***D. Ajacis**, Reichb. Ic. Fl. Germ. et Helv. iv. f. 4670 (? Linn. Sp. Pl. 531). *Larkepur*.

D. Consolida, Sibth. et Sm. Fl. Graeca, Prod. i. 370, et Sm. Fl. Brit. (not of Linn.). *D. segetum, flore coeruleo*, Ray, Syn. 273 (1724). *Consolida regalis arvensis, flore coeruleo*, C. B. Pin. 142.

Comp. Cyb. Br. 87. Syme, E. B. i. 62, t. 47 (small plant). Nyman, 21. Baxt. t. 297. Fl. Oxf. 15. (The *D. Ajacis* of the Linnean Herbarium is *D. orientalis*, Gay.)

Casual or colonist. Cornfields and waste places. Local and rare, and not constant in its localities. A. July-August.

First record. Cookham Lock. *Britten's Contr.* 1871.

2. **Ock.** Cornfields on Boar's Hill, plentiful in 1889. On rubbish-heaps near Abingdon.

3. **Pang.** Fields at back of Streatley Woods. Basildon, *Tufnail*, in *Fl. Oxf.*

4. **Kennet.** Wickham, *Mrs. Batson*. Roadside, Compton. Waste ground near Reading, 1890.

5. **Loddon.** Waste ground near Cookham Lock, 1865, *Britt. Contr.* Wargrave, *Melvill*, l. c. Railway-side near Maidenhead.

D. Ajacis does not appear to have been recorded, even as a casual, from East Gloucestershire or Buckinghamshire.

** **D. PEREGRINUM**, Linn. Sp. Pl. 531 (1753). Nyman, 21.

This southern species occurred as a casual at Grandpont in 1891. The ground is now built over. On the continent it is a very variable species.

** **ACONITUM NAFELLUS**, Linn. Sp. Pl. 532 (1753). *Monkshood*, *Wolfsbane*.

Napellus versus coeruleus, Ger. Em. 972. Syme, E. B. i. 64, t. 48. Nyman, 20. Baxt. t. 87.

Alien. Meadows and hedges. Rare and certainly introduced. P. July-August.

2. **Ock.** In two places in Bagley Wood; quite naturalized, but only the remains of old gardens.
3. **Pang.** Near Bradfield, in a meadow by the stream, *Jenkinson*.
5. **Loddon.** Ashley Hill. Near Long Moor. In both situations escaped from a garden.

** **PAEONIA CORALLINA**, Retz, Obs. fasc. 3. 34. *The Peony*.

P. officinalis, var. *mascula*, Linn. Sp. Pl. 530 (1753). Syme, E. B. i. 68, t. 50 Fl. Oxf. 15. Nyman, 21.

Casual. *Paeonia foemina*, Female Peony. In a close belonging to Mrs Anne Stevenson at Sunningwell in Berkshire, of above 50 years standing, [*How's*] *Phyt. Brit.* p. 95, 1650. The record is repeated in Merrett's *Pinax*, 1666. Site of old garden in Bagley Wood.

PODOPHYLLACEAE, DC. Propr. Méd. ed. 2, 119 (1816).

BERBERIDEAE (Vent. 1799), Benth. and Hook. Gen. Pl. i. 40.

BERBERIS, Linn. Gen. n. 399 (Tournefort, Inst. t. 385).

* **B. vulgaris**, Linn. Sp. Pl. 330 (1753). *The Barberry*.

B. dumetorum, C. B. Pin. 454. *B. vulgaris*, Clus. (1601). *Oxyacantha*, Fuchs, Hist. 542.

Top. Bot. 18. Syme, E. B. i. 71, t. 51. Baxt. t. 115. Nyman, 22. Fl. Oxf. 15.

Alien or denizen. Septal. Hedges. Local and rare. Shrub. May-June. First record. *B. vulgaris*. Woods and hedges, not uncommon. Farmers and gardeners consider it a cause of blight, *Mavor's Agr. Berks*, 1809.

1. **Isis.** In a hedge in the vineyard piece near Cumnor, *Mrs. King*, in *Baxt. Phaen. Bot.* Buckland, *Boswell*. Pusey. Near Wytham.

2. **Ock.** Bagley Wood, *Baxter*, in *Walk. Fl.* South Hinksey, *Dyer*. Harwell, *Lomax*. Besilsleigh. Extensively planted about Lockinge.

3. **Pang.** Hedge in Pangbourn meadows, *Tufnail*.

5. **Loddon.** Planted at Frogmore.

Godstow Nunnery, for which it is recorded as a Berkshire locality in Britten's *Contr.*, is in Oxfordshire.

Berberis occurs in all the bordering counties.

NYMPHAEACEAE, DC. Propr. Méd. ed. 2, 119 (1816).

NYMPHAEA, Linn. Gen. Pl. n. 579 (Tournefort, Inst. t. 137-8).

N. lutea, Linn. Sp. Pl. 510 (1753), and of Fuchs (1542). *Yellow Water Lily*.

Nuphar lutea, Sm. in Sibth. et Sm. Fl. Graeca Prod. i. 361.

Top. Bot. 20. Syme, E. B. i. 78, t. 54. Nyman, 23. Baxt. tt. 281-2. Fl. Oxf. 17.

Native. Lacustral. Rivers, ditches, and ponds. Common and generally distributed along the rivers of the county. Abundant in the Loddon and Thames. It varies considerably in the size of the flowers. P. June–August.

First record. *Nymphaea lutea*. In slow rivers, *Mavor's Agr. Berks*, 1809. Northcroft, *Russell's Cat.* 1839.

A form with very large flowers occurs in Southcote moat.

Nymphaea lutea is very frequently represented in pictures of Thames scenery, and is found in all the bordering counties.

CASTALIA, Salisb. Parad. Lond. i. t. 14 (1805). *Nymphaea*, Sm. l.c.

C. speciosa, Salisb. in Kon. and Sims, Ann. Bot. ii. (1806) 72. *White Water Lily*.

Nymphaea alba, Linn. Sp. Pl. 510 (1753), and of Gerard. *Castalia alba*. Top. Bot. 19. Syme, E. B. i. 76, t. 53. Nyman, 23. Baxt. tt. 181–2. Fl. Oxf. 16.

Native. Lacustral. Rivers, ponds, &c., in quiet waters. Common. P. May–August.

First record. *Nymphaea alba major vulgaris*, Park. 1251. In Windsor Lake. *Blackstone, Spec. Bot.* 60, 1746.

1. **Isis.** Ditches about Oxford, *Rufford in Pert. Midl. Fl.* Abundant at intervals in the Thames from Chimney to Wolvercote. Buscot Lake. Buckland Lake. Pond near Wytham.
2. **Ock.** Abingdon Canal, *Whitwell*. Marcham, *Walker*. Sandford. Nuneham. Abingdon. Sutton Courtney. Dorchester. Wallingford. Mongewell. Culham. Lockinge Park. Oxford Waterworks Reservoir. Radley.
3. **Pang.** Fair Cross Pond, Hermitage, *W. M. Rogers*. Caversham, *Phyt.* In the Thames at intervals from Mongewell to Reading.
4. **Kennet.** Wash Water, *Russell's Cat.* Kennet Canal between Newbury and Benham. Aldermaston. Hampstead Marshall.
5. **Loddon.** Windsor Lake, *Blackstone*. From the Loddon, *Rudge in Herb. Brit. Mus.* Thames near Temple, *Mill*. Near Sandford Mill. Wargrave. Plentiful in the Loddon between Twyford and Loddon Bridge. Wokingham. Bearwood Lake. Arborfield. Swallowfield. White Knights. Stanlake. Hurst. Hurley. Windsor. Virginia Water. Near Ascot. Binfield. Sandhurst. Frogmore.

Var. **MINOR** (DC. Syst. ii. 56), N. E. Brown, in E. B. Suppl. ed. 3, 18. From 'the ditch at the west side of a field at South Hinksey, near the "Devil's Backbone," in flower July 31, 1844. The flowers when pressed flat in a fully expanded state, measured only 3½ inches across.' *Baxter in Herb. Oxford*. The same form has also been noticed in the Abingdon Canal and in Virginia Water, but I do not think it is really a variety, but only a form depending on local circumstances.

The White Water Lily is a most beautiful feature in our river scenery; generations of painters of the Thames have delineated it on their canvas. Keeley Halswelle's pictures are very frequently brightened by the introduction of this flower. In *Hall's Book of the Thames*, the authors say, 'In the still recesses of the river about Oxford we found that queen of water-nymphs . . . in the greatest luxuriance, both in the number, and in the extraordinary size of the flowers and leaves . . . We found that the stems were eight to ten feet in length, and the leaves were of immense breadth; the flowers were also unusually developed, and some specimens were suffused with a blush of roseate tint, that contrasted delightfully with the rich green of the calyx and leaves.'

The plant is found in all the bordering counties.

PAPAVERACEAE, B. Juss. Hort. Trian. (1759).

PAPAYER, Linn. Gen. Pl. n. 573 (Tournefort, Inst. t. 119).

* **P. SOMNIFERUM**, Linn. Sp. Pl. 508 (1753). *The Opium Poppy.*

P. sylvestre, Ger. Em. 370 (lettered 400).

Cyb. Br. i. 106. Comp. Cyb. Br. 479. Syme, E. B. i. 82, t. 57. Baxt. t. 53. Nyman, 23. Fl. Oxf. 17.

Alien. Waste places and cornfields. Rather rare. A. June-August.

First recorded by Mr. T. B. Flower (unlocalized) in *Robertson's Env. of Reading*, 1843.

1. **Isis.** Cumnor Hill, *Whitwell*. Wytham.

2. **Ock.** Plentiful on racecourse, Abingdon. Ferry Hinksey. Didcot.

3. **Pang.** Field near Ilsley, *Hewett's Hist.* East Ilsley, *W. M. Rogers*. Ashridge Wood. Tilehurst.

4. **Kennet.** Near Newbury. Padworth. Near West Ilsley.

5. **Loddon.** Wargrave (*glabrum*), *Melvill*. Near Reading. Farley Hill. Twyford. Maidenhead. Near Ascot.

Var. **NIGRUM**, Crantz, Stirp. Austr. ii. 129. The dark-flowered form has been noticed at Didcot, Tilehurst, Pangbourn, and Newbury.

Var. **ALBUM**, Crantz, l. c. The white-flowered plant is the commoner form.

The form (*laciniata*, Reichb.) with deeply-cut petals has been observed by the railway about Pangbourn and Twyford, but this and the preceding forms owe their origin to gardens, or to stray seeds which have been scattered by various means. The variety with hispid hairs on the stem and the leaves more deeply cut, retained as a distinct species by Willkomm and Lange in *Prod. Fl. Hisp.* iii. 873, under the name *P. setigerum*, DC. Syst. ii. 81 (1821), but which Koch in *Syn. Fl. Germ.* 30 (1837) considers to be only the wild state of *P. somniferum*, occurred on railway ballast at Didcot in 1891.

P. somniferum occurs in all the bordering counties, including Buckinghamshire, at Taplow, &c.

P. Rhoeas, Linn. Sp. Pl. 507 (1753), and of Gerard 299. *Common Red Poppy, Corn Poppy.*

Papaver erraticum Rhoeas, sive sylvestre, Park, 367 (1640).

Top. Bot. 22. Syme, E. B. i. 87, t. 58. Nyman, 24. Fl. Oxf. 17.

Colonist. Agrestal. Cornfields, waste places. Abundant and generally distributed except in some of the cornfields on the Upper Chalk.

A. May–August.

First record. *Papaver Rhoeas flore variegato*, near Redding, [How], *Phyt. Brit.* 88, 1650. In Elias Ashmole's copy of this work, in the Bodleian Library, the initials of J. Watlington, an apothecary of Reading, are appended to this record, which was probably given by him to How. A specimen from Sonning, collected by S. Rudge about 1800, is in *Herb. Brit. Mus.* It is included in *Russell's Newbury Cat.* of 1839.

P. Rhoeas is a variable plant, and Jordan has given specific value to such of these variations as he thought were constant to their characters in cultivation.

Var. *STRIGOSUM*, Boenn. Prod. Fl. Monast. 157 (1824), in which the hairs on the lower part of the stem are spreading, but those on the peduncles adpressed, is scattered through the county, having been found near Oxford, Abingdon, Newbury, Twyford, Marlow, Maidenhead, Hurley, and Wokingham. At Beeton it was noticed by the Rev. W. M. Rogers. My friend, Mr. H. N. Dixon, in the *Journ. Bot.* for 1892, 309, says that when seeds were sown of specimens of this variety, which he gathered in a locality where he did not see *P. dubium*, two only, out of ten plants thus obtained, proved to be var. *strigosum*. He therefore considered that it was not a true variety, but I do not think that this experiment is sufficient to prove that the plant was not of hybrid origin.

Var. *PRYORII*, Druce, in Rep. of Bot. Exch. Club, 199, 1888.

In the *Flora of Oxfordshire*, I drew attention to a plant which had the hairs on the peduncle of a crimson colour, and thought it might be correlated with a slightly different form of leaf; this however did not prove to be the case. Subsequently, in the publication cited, I gave the name in memory of the late Mr. R. A. Pryor, the author of the *Flora of Hertfordshire*, who had noticed the plant in that county. The plant is widely distributed and grows with ordinary *P. Rhoeas* at Cumnor, Boar's Hill, Radley, Bagley, Newbury, West Ilsley, Culham, Wargrave, Farley Hill, Swallowfield, Windsor, Wellington College, Ascot, Maidenhead, Binfield, Ascot, &c. The character is especially noticeable before the plants flower, as on the shortened axis the hairs are closer together, and the crimson colour is more conspicuous; after flowering the colour to some extent fades.

Var. *ROUBIAEI* (Vig. [Viq. in Index Kewensis] Diss. 39), var. *vestitum*, Gren. et Godr. Fl. Fr. i. 58. To this is referred a small flowered form with paler petals, a more decumbent stem which branches from the base, with more divided leaves, and the whole plant more bristly. Autumnal forms of *P. Rhoeas* with the primary stem destroyed must

not be mistaken for this form, which has been seen near the Oxford Gas-works, by the railway at Didcot, and elsewhere.

Near Hungerford a form has occurred with leaves resembling *P. Argemone*, but the capsules were typical in shape and glabrous. A form with striped petals has been noticed at Didcot, and a white flowered form at Wootton.

P. RHOEAS \times *DUBIUM*.

A plant having the above parentage occurred at Kintbury. The leaves were intermediate in character and the petals in the calyx just before expansion white; in *Rhoeas* in the same condition they are pale red, in *dubium* nearly white. Probably a considerable number of plants referred to var. *strigosum* are really of hybrid origin.

P. Rhoeas is an abundant plant on the Upper Greensand formation, and also especially noticeable on some of the Tertiary beds when of a sandy character; the cornfields on the shoulders of some of the hills overlooking the Thames valley between Goring and Reading, present a beautiful sight from the profusion of growth of the Red Poppy.

P. Rhoeas occurs in all the bordering counties.

P. dubium, Linn. Sp. Pl. 1196 (1753). *Long Smooth-headed Poppy*.

Argemone capitulo longiore glabro, Morison, Hist. Ox. ii. 279 (1680).

Top. Bot. 22. Syme, E. B. i. 89, t. 59. Nyman, 24. Fl. Oxf. 18.

Colonist. Agrestal. Cornfields, waste places, wall-tops, &c. Common and generally distributed. A. May–August.

First record. Walls and banks near the town [Marlow], Mr. G. G. Mill in *Phyt.* i. 984 (1843); and also included by Mr. T. B. Flower in *Robertson's Env. of Reading* (1843).

P. dubium has been divided by critical continental botanists into several species, five of which have been beautifully figured in Jordan and Fourreau's *Icones ad Floram Europae*. In the *Flora of Oxfordshire* I kept one of these species distinct from the type, but in the present work *P. Lecoqii* is placed as a variety of *P. dubium*, since it appears to be only one of a series of forms similar to those figured in Jordan's work, and I find the characters given for it are by no means constant. The latex, which is said to be yellow in *P. Lecoqii*, has been seen of that colour in plants with the characters of *P. Lamottei*. This latter is the typical plant and more frequent with us.

Var. *LECOQUI* (Lamotte, Not. sur les Pap. Dub. 429, as a species). Syme, l.c. t. 60.

First recorded by the Author in *Rep. of Bot. Rec. Club*, 1881.

1. *Isis*. Wytham. Cumnor.

2. *Ook*. Hinksey. Steventon. Tubney. Marcham.

3. *Pang*. Field between Langley Wood and Sandy Lane, *W. M.*

Rogers. Shaw, Jackson. Pangbourn. Moultsford.

4. Kennet. Theale. Padworth.

5. Loddon. Twyford. Hurley. Maidenhead.

Specimens with white latex, which agreed excellently with the plate of *P. modestum*, Jord. in the *Icones*, have been seen in fields between Culham and Hurley, and specimens of *P. errabundum* at Cothill. In the latter locality a form occurred in which the capsules were infected with a gall insect, so that the capsule became hypertrophied into a globose shape nearly an inch in diameter. A form with very long capsules occurred with foreign casuals at Didcot, but I have not yet been able to identify it. The leaves of *P. dubium* vary much in shape and texture, and the seeds also vary in colour. In the unopened calyces the petals are of a very much paler hue than those of *P. Rhoeas* in a similar condition.

P. dubium occurs in all the bordering counties, but *P. Lecogii* does not appear to be recorded for E. Gloucestershire.

P. Argemone, Linn. Sp. Pl. 506 (1753). *Long Rough-headed Poppy.*

Argemone capitulo longiore, C. B. Pin. 172.

Top. Bot. 21. Syme, E. B. i. 91, t. 61. Nyman, 24. Fl. Oxf. 18.

Colonist or native. Agrestal. Waysides, cornfields, &c. Not uncommon and widely distributed. A. May-July.

First record. *P. Argemone*. Dr. Noehden, in *Mavor's Agr. Berks*, 1809.

1. Isis. Appleton, Walker. Faringdon. Coleshill.

2. Ock. Wootton, Boswell in *Fl. Oxf.* Tubney. Frilford. Besilsleigh. Marcham. Cholsey. Steventon. Abingdon. Blewbury. Hagborne. Didcot. Aston Tirrel. Long Wittenham. Kingston Bagpuze.

3. Pang. Streatley. Pangbourn. Basildon. Tilehurst. Bucklebury. Ashampstead. Hermitage.

4. Kennet. Cornfields, North Heath, *Russell's Cat.* Reading. Tufnail. Newbury. Lambourn. Shefford. Padworth. Aldermaston. Theale. Hampstead Marshall. Enborne. West Ilsley.

5. Loddon. Near Marlow frequent, *Mill.* Early, *Tufnail.* Park Place, Stanton. Hurst. Coleman's Moor. Wargrave. Maidenhead. Twyford. Jouldern's Ford.

A small form found on dry wall-tops is probably *P. micranthum*, Boreau, Fl. du Centr. Fr. ed. 3, ii. 29. *P. Argemone*, though widely distributed, is much less frequent than the two preceding species. It is a plant of sandy soils, and from its growing by roadsides has more the appearance of being a native than the other red poppies. From a large tract of the grassy ground of the chalk range, and from the uncultivated heathy district of the south-west, the poppies are practically absent.

P. Argemone occurs in all the bordering counties.

P. hybridum, Linn. Sp. Pl. p. 506 (1753). *Round Rough-headed Poppy*.
P. laciniato folio, capitulo hispido rotundiore, Ray, Syn. 122 (1690).

Top. Bot. 21. Syme, E. B. i. 92, t. 62. Nyman, 24. Fl. Oxf. 19.

Colonist. Agrestal. Cornfields. Local and rare. A. June–Sept.

First record. *P. hybridum*, Mongrel Poppy. Mr. Bicheno, *Mavor's Agr. Berks*, 1809.

2. **Ook**. Near Abingdon, *the Author in Rep. of Bot. Rec. Club*, 1886.
 Marcham. Blewbury. West Hanney.

3. **Pang**. Tilehurst, *F. Tufnail*. Compton. East Ilsley. Near
 Unwell Wood. Moulsoford.

4. **Kennet**. Common in many cornfields. Elcot. West Woodhay.
 Kintbury, &c., *Reeks*. Reading, *Tufnail*. Mortimer. Padworth.

5. **Loddon**. Remenham sand-pit with the other three species, *Mr.*
Stanton. Sonning Cutting, *Tufnail*. Hurley.

The colour of the petals is stated by Sir J. Hooker in the *Student's Flora* to be scarlet, but in all the specimens that I have seen it is much darker than in the other species, and I should call it crimson.

P. hybridum is much the rarest of the four red poppies, but is recorded from all the bordering counties except Buckinghamshire.

****GLAUCIUM PHOENICEUM**, Crantz, Stirp. Austr. ii. 133 (1763).

G. corniculatum, Curt. Fl. Lond. vi. t. 32 (1798). *Chelidonium corniculatum*,
 Linn. Sp. Pl. 506 (1753). Syme, E. B. i. 96, t. 65. Comp. Cyb. Br. 479.

Alien. Waste places. Casual, and rare. A. June–July.

On rubbish heaps at Grandpont in 1891 on ground now built over. On
 waste ground, Didcot, in flower, June 1896.

CHELIDONIUM, Linn. Gen. Pl. n. 572 (Tournefort, Inst. t. 116).

C. majus, Linn. Sp. Pl. 505 (1753), and of Gerard, 294. *Great Celandine*,
Wart-wort.

Papaver corniculatum luteum, *Chelidonia dictum*, Ray, Syn. 122 (1690).

Top. Bot. 23. Syme, E. B. i. 99, t. 67. Baxt. t. 51. Nyman, 25.
 Fl. Oxf. 19.

Denizen or native. Septal. Hedgebanks, waste places, usually near
 villages; rather common and generally distributed. P. April–
 September.

First record. *C. majus*, Dr. Noehden, *Mavor's Agr. Berks*, 1809.

1. **Isis**. Near Binsey. Wytham. Buscot. Faringdon. Deancourt.
 Appleton. Cumnor.

2. **Ook**. Between Faringdon and Challow, *Richards*. S. Hinksey,
Baxter. North Hinksey, *Whitwell*. Tubney, *Walker*. Blewbury,
Lousley, in *Russell's Cat*. Bayworth. Dry Sandford. Wantage.
 Wootton. Cholsey. Aston Tirrel. Letcombe. Cothill. Lyford.
 Kennington. Uffington.

3. **Pang.** On banks and waste places about Hampstead Norris and Compton, but not plentiful or common, *Lousley in Russell's Cat. Streatley, Pamplin.* Bradfield, *Jenkinson.* In a very wild station on downs near Unwell Wood. Standford Dingley. Bucklebury. Yattendon. Ashampstead. Cold Ash. Tidmarsh. Pangbourn. Railway-side between Streatley and Pangbourn. Near Reading on chalk ballast.
 4. **Kennet.** Newbury, *Weaver.* Wickham, *Mrs. Batson.* Lambourn. Weston. Padworth. Kintbury. Greenham Common. Hungerford. Southcote. Theale.
 5. **Loddon.** Bisham Wood, by Winter Hill, *Mill.* Wargrave. Crazey Hill. Remenham Lane, *Stanton.* Near Sandford Mill, *Melvil.* Stubbing's Heath. Finchampstead Leas. Sunninghill. Windsor. Cookham. Silchester. Loddon Bridge. Culham. White Waltham. Ruscombe. Frogmore. Windsor Castle Slopes.
- Chelidonium majus* occurs in all the bordering counties.

FUMARIACEAE, DC. Théor. Élém. 244 (1819).

CAPNOIDES, Adans. Fam. ii. 431 (1763), (Tournefort, Inst. t. 237).

Neckeria, Scop. Introd. 313, n. 1436 (1777). *Corydalis*, DC. Fl. Fr. iv. 636 (1805).

****C. LUTEA**, Gaertn. Fruct. ii. 163 (1791). *Yellow Fumitory.*

Fumaria lutea, Linn. Mant. ii. 258. *F. Capnoides*, Linn. Sp. Pl. 700 (1753). *Corydalis lutea*, DC. l. c. 638; also of Index Kewensis and Fl. Oxf. *C. Capnoides*, Pers. Syn. ii. 270. *Neckeria lutea* et *Capnoides*, Neck. El. iii. 60.

Alien. Rupestral. On walls in villages. P. Rare. May-June.

Comp. Cyb. Brit. 479. Syme, E. B. i. 102, t. 69. Nyman, 26. Fl. Oxf. 20.

1. **Isis.** *Corydalis lutea.* Old walls, Wytham, Whitwell in 1875, the first notice.

2. **Ock.** Hanney, *Wait.* Steventon.

4. **Kennet.** At the Reading water-works in the Burghfield meadows, *Tufnail.* Plentiful about the walls of Southcote House.

****C. CAVA**, Moench, Meth. 52 (1794).

Fumaria bulbosa, var. *a. cava*, Linn. Sp. Pl. 699 (1753). *F. cava*, Miller, Gard. Dict. ed. 8 (1768). *Corydalis cava*, Schweigg. and Koerte, Fl. Erlang. ii. 44 (1811). *C. bulbosa*, Per. Syn. ii. 269 (1807), not of DC. *C. tuberosa*, DC. Syst. ii. 117, and Fl. Fr. iv. 637. *Neckeria cava*.

Bot. Mag. t. 232 (1793). Nyman, 26.

Alien. A garden escape or intentionally planted. P. April-May.

5. **Loddon.** In a wood at Bracknell, *Mr. E. Newman*, April 12, 1876, in *Herb. Brit. Mus.*

The entire bracts distinguish this species from the closely-allied plant *C. solida*.

****C. SOLIDA**, Moench, Meth. 52 (1794).

Fumaria bulbosa, var. *solida*, Linn. Sp. Pl. 699. *F. solida*, Miller, Gard. Dict. l. c. *Corydalis solida*, Swartz in Sv. Bot. viii. t. 531 (1819). *C. bulbosa*, DC. Syst. ii. 119, and Fl. Fr. iv. 637, Index Kewensis and Flora Oxf.

C. digitata, Pers. Syn. ii. 269 (1807). *Neckeria solida*. *N. bulbosa*, N. E. Br.

Comp. Cyb. Br. 479. Curtis, Bot. Mag. t. 231. Syme, E. B. i. 101, t. 69. Nyman, 26. Fl. Oxf. 20.

Alien. A garden escape. P. April-May.

2. **Ock.** In a hedge at Bayworth, but not very near a garden.

In this species the bracts are digitately cut.

Neither of the foregoing species of *Capnoides* are native to the British Flora. Until recently the genus appeared in our British Floras under the name of *Corydalis*. In the *E. B. Suppl.* ed. 3, l. c., Mr. N. E. Brown adopted for this genus Scopoli's name of *Neckeria*, which is certainly older. In the present work Adanson's name of *Capnoides*, which he took from Tournefort, is adopted, as it undoubtedly has priority over the names already mentioned. Unfortunately it is faulty in construction, and to amend it Kuntze, in the *Revisio Generum Plantarum*, altered it to *Capnodes*, but I do not think he is justified in this. I should rather claim for it the privilege which we accord to the genus *Gloriosa* of Linnaeus and *Mniodes* of Asa Gray, which are adopted in Bentham and Hooker's *Genera Plantarum*. Moreover, Adanson's name for the genus has been accepted in several continental floras.

C. claviculata, mihi. *Climbing Fumitory*.

Fumaria claviculata, Linn. Sp. Pl. 701. *Corydalis claviculata*, DC., Fl.

Fr. iv. 638. *Neckeria claviculata*, N. E. Brown in E. B. Suppl. l. c.

Top. Bot. 24. Syme, E. B. i. 103, t. 70. Nyman, 26. Fl. Oxf. 20.

Native. Sylvestral, septal. Coppices, hedges, very local and rare.

A. June-August.

First record. *Corydalis claviculata*, Mr. M. H. Wilkin in *Phyt. n. s.* (1857-8), 172.

5. **Loddon.** By rail-side near Sunningdale Station, *Wilkin*. Farmer Bishop's Wood, Ambarrow; also near a brook between the railway and Sandhurst Road, *Penny*, in *Britt. Contr.* Near the Blackwater, below Wokingham, *Salmon*. In a hedge near the Saw Mills at Finchampstead, *Tufnail*.

This species, which appears to be restricted to the extreme south of the county, is also very rare in Oxfordshire, where I have only seen it in two localities, viz. Hailey Wood and Bruern Wood. In Buckinghamshire it occurs near Stoke Poges and in Brickhill Woods. It does not appear to have been found in Wiltshire or E. Gloucestershire, but is recorded for the other bordering counties.

FUMARIA, Linn. Gen. Pl. n. 760 (Tournefort, Inst. t. 237).

* **F. capreolata**, Linn. Sp. Pl. 701 (1753), and Index Kewensis.

F. pallidiflora, Jord. Cat. Gren. 15 (1849).

Top. Bot. 25. Syme, E. B. i. 105, t. 71. Nyman, 27. Fl. Oxf. 21.

Casual. Waste ground. Very rare. A. July-October.

2. **Ock.** Near Oxford, under the name of *pallidiflora*, *Boswell* in *Britt. Contr.* Near Grandpont in 1890, on ground now built over.

5. **Loddon.** Some young plants, apparently of *F. capreolata*, near

Wargrave, *Britt. Contr.* 1871. Near Windsor, *Bolton King*, about 1878. Near Sandhurst, 1895.

* *F. Boraei*, Jord. Cat. Jard. Bot. Gren. 15 (1849).

F. pallidiflora, var. *Boraei*, Bab. Man. Brit. Pl. ed. 4, 17. *F. media*, Index Kewensis, i. 982.

Top. Bot. 25. Syme, E. B. i. 106, t. 72. Nyman, 27. Fl. Oxf. 21.

Casual or colonist. A weed in waste places. Very rare. A. June–August.

2. Ock. By the railway near Oxford.

5. Loddon. Near the railway at Maidenhead, 1895.

F. Boraei is recorded for Oxfordshire, Hampshire, Wiltshire, and Surrey.

* *F. confusa*, Jord. Cat. Jard. Bot. Dij. 18 (1848).

Placed as synonymous with *F. media*, Loisel. in Desv. Journ. de Bot. ii. (1809) 357, and in Index Kewensis.

Top. Bot. 25. Syme, E. B. i. 107, t. 73. Nyman, 27. Fl. Oxf. 21.

Colonist. Agrestal. Railway-sides and waste ground. Very rare. A. July–September.

First found by the Author in Berkshire in 1892. See *Rep. Bot. Exch. Club* (1892), 353.

2. Ock. It occurred in scattered patches by the railway-side between the Great Western Railway Station at Oxford and the Water-works reservoir, and in potato ground at Hinksey.

The older name is said to be *F. Bastardi*, Boreau in Duch. Rev. Bot. ii. 359 (1847).

The plant occurs in Oxfordshire, Surrey, Hants, and Wilts.

F. muralis, Sonder, ex Koch, Syn. Fl. Germ. ed. 2, 1017 (1845).

Top. Bot. 26. Syme, E. B. i. 108, t. 74. Nyman, 27. Fl. Oxf. 21.

Colonist. Septal. Hedge-banks. Rare. A. July–August.

First found by the Author near the Blackwater in 1891.

2. Ock. Railway-side near Culham.

5. Loddon. By the Blackwater near New Bridge.

In the *Rep. Bot. Exch. Club* for 1882 this species is erroneously mentioned as having been sent by me from Lowbury in Berkshire. The plant sent was *F. Vaillantii* not *F. muralis*.

The plant is recorded from Oxfordshire, Surrey, and Hants.

F. densiflora, DC., Cat. Hort. Monsp. 113 (1813), not of the Systema or Prodrum.

F. micrantha, Lag. Nov. Gen. et Sp. xxi. n. 218 (1816).

Top. Bot. 26. Syme, E. B. i. 109, t. 75. Nyman, 28. Fl. Oxf. 21.

Colonist. Agrestal. Cultivated fields; not uncommon, but rather local. A. June–October.

First record. Lowbury, the Author, see *Rep. of Bot. Rec. Club*, 1881.

2. Ock. Near Aston Tirrel. Blewburton Hill. Near King Standing Hill.
3. Pang. Lowbury. Field near Unwell Wood, *Rep. of Bot. Rec. Club*, 1881. Pangbourn. Compton. On chalk rubble near Reading. Near Bradfield.
4. Kennet. Kintbury. Hungerford. Near Newbury Workhouse. Enborne Road.

This plant appears to be confined to the arable fields on the chalk in Berkshire, where it is found on King Standing Hill at an elevation of 400 feet. Sometimes *F. officinalis* grows with it, but no intermediate forms have been observed by me. (The authors of the *Herefordshire Flora* record intermediate plants.) *F. densiflora* may readily be known from *F. officinalis* by the large sepals and the sub-globose fruit; the leaves, especially in the young state, are also different, being usually of a yellower-green in colour and thicker in the texture, but the differences, although manifest enough to the eye, are not easily described. East Gloucestershire is the only bordering county from which *F. densiflora* is not recorded.

F. officinalis, Linn. Sp. Pl. 700 (1753). *Fumitory*.

F. purpurea, Gerard, 927 (1597).

Top. Bot. 26. Syme, E. B. i. 110, t. 76. Nyman, 27. Baxt. t. 278. Fl. Oxf. 21.

Native or colonist. Agrestal. Cultivated fields, garden ground, &c. Common and generally distributed. A. May-October.

First record. *F. officinalis*. Gardens, cornfields, *Mavor's Agr. Berks*, p. 256, 1809.

Boreau points out that the early flowering plants have larger and more brightly-coloured flowers than those which bloom later in the year.

Var. **DENSIFLORA**, Gren. and Godr. Fl. Fr. i. 68 (*F. densiflora*, Parl. Mon. not of DC., Cat. Monsp.), a form which occurs in dry chalky fields, has more compact spikes and smaller leaves of a more fleshy texture.

Var. **SCANDENS**. See Lamotte, Fl. du Plateau, 69 (1877), Reichb. Ic. Fl. Germ. et Helv. iii. f. 4454, is an autumnal form often found in rich garden ground or potato fields, and has a habit which approaches the capreolate group in its rampant growth. It may be distinguished from that section by the abrupt enlargement of the lip in the lower petal. This form has been noticed about Abingdon, Reading, Twyford, &c. A similar but much more glaucous plant occurs in garden ground at Newbury; specimens were sent to the *Bot. Exch. Club* in 1892.

Fumaria officinalis is abundant in all the bordering counties.

F. Vallantii, Loisel. in Desv. Journ. de Bot. ii. (1809) 358, and in Not. 102 (1810).

Top. Bot. 27. Syme, E. B. i. 113, t. 77. Nyman, 28. Fl. Oxf. 22.
Colonist. Agrestal. Cultivated fields and waste ground. Very rare.

A. August-September.

First record. Lowbury, the Author, in *Rep. of Bot. Rec. Club* for 1881.

2. Ock. Fields near Lowbury Hill.

3. Pang. Fields between Lowbury Hill and Unwell Road. Between Streatley and Pangbourn.

The flatter leaflets and the fruit, rounded not pointed at the top when mature, are the chief features distinguishing it from *F. parviflora*, of which Syme made it a sub-species, but Haussknecht, Willkomm, and Lange consider it to be distinct.

The specific name was given in honour of Vaillant, the author of *Botanicon Parisiense*, the friend and correspondent of Sherard. The Oxford Herbarium contains many of Vaillant's plants which were bequeathed by Sherard.

It is not recorded for Bucks, Wilts, or East Gloucestershire.

F. parviflora, Lam. Enc. Méth. ii. 567 (1786).

F. tenuifolia, Symons, Syn. 200, not of Roth.

Top. Bot. 27. Syme, E. B. i. 114, t. 78. Nyman, 28. Fl. Oxf. 22.

Colonist. Agrestal. Cultivated fields on the Lower Chalk. Rare.

A. June-September.

First record. The Author in *Rep. of Bot. Rec. Club* for 1881. See also *Rep. Bot. Exch. Club* for 1881 and 1888.

2. Ock. Field near Lowbury.

3. Pang. Near Streatley. Field near Unwell Wood.

4. Kennet. In a high chalky field above Hoe Benham, *Miss Bowen*.

This plant is much more glaucous than any other British *Fumaria*; a bare chalk field, in which this was the prevailing plant in 1892, looked at a distance as if a bluish-white smoke was overhanging it. I suspect that our plant from these dry chalk fields would be called var. *erecta* by Haussknecht. See *Flora* (1873), 460.

The two latter species appear to be confined to the Lower Chalk formations in Oxfordshire and Berkshire. *F. parviflora*, which occurs also in Bucks and Hants, is not recorded for Wilts or East Gloucestershire.

This order is included in *Papaveraceae* by Bentham and Hooker.

CRUCIFERAE, B. Juss. in Hort. Trianon (1759).

BRASSICACEAE, Lindl. Nat. Syst. ed. ii. 58 (1836).

CHEIRANTHUS, Linn. Gen. Pl. n. 730 (*Leucoium*, Tournefort, Inst. t. 107).

* ***C. Cheiri***, Linn. Sp. Pl. 661 (1753). *Gilliflower*, *Wallflower*.

Leucoium luteum, vulgo *Cheiri flore simplici*, J. Bauhin, Hist. ii. 872.

Comp. Cyb. 485. Syme, E. B. i. 154, t. 106. Baxt. t. 237. Nyman, 31. Fl. Oxf. 22.

Denizen. Rupestral. Old walls. P. April-June.

First record. On old stone walls about Drayton and Sutton [Courtney], Mr. J. Lousley in *Russell's Cat.* of 1839.

1. Isis. Wytham. Faringdon.

2. Ock. Drayton and Sutton [Courtney], Lousley. Abingdon. Marcham.

3. Pang. Streatley. Pangbourn. Bucklebury.

4. Kennet. Reading Abbey walls. Kintbury. West Ilsley, &c.

5. Loddon. Sonning. Cookham. Windsor Castle. Shottesbrooke. In none of these localities is *Cheiranthus* a native plant. On the wall of Reading Abbey it is completely naturalized, and occurs sometimes with the flowers smaller in size and of a uniform pale yellow (the *C. fruticulosus* of Sm. E. B. t. 1934), but all gradations between this and the brown-flowered plant may be found.

The so-called variety *gynantherus*, DC., which is only a monstrous form, was observed in the same locality in 1892.

The Wallflower occurs in a more or less naturalized condition in all the bordering counties.

RORIPA, Scop. Fl. Carn. 520 (1760). Adans, Fam. ii. 417 (1763).

Nasturtium, R. Br. in Aiton, Hort. Kew. iv. 109 (1812).

R. Nasturtium, Beck, Fl. Nied. Öster. ii. 463 (1892). *Water Cress*.

Sisymbrium Nasturtium-aquaticum, Linn. Sp. Pl. 657 (1753). *Nasturtium aquaticum vulgare*, Park. *Cardamine Nasturtium*, Moench, Meth.

262. *Nasturtium officinale*, R. Br. l. c. 111. This name is adopted in Index Kewensis.

Top. Bot. 43. Syme, E. B. i. 176, t. 125. Nyman, 35. Baxt. t. 271. Fl. Oxf. 25.

Native. Paludal. Brooks, ditches, and wet places. Common and generally distributed, but especially abundant in streams issuing from the base of the chalk escarpment in the Ock district. P. April-October.

First record. Lesser Watercress in all the Oxford ditches, MS. in Lyte's *Herball*, 1660. Published as *Sisymbrium nasturtium* in *Mavor's Agr. Berks* in 1809.

Water Cress is extensively grown in springs thrown out at the base of the chalk escarpment, as at Uffington, Ashbury, Kingston, Hagborne, and also in the stream near Bradfield and Standford Dingley.

There are several forms of the Water Cress, and two varieties have been admitted into our British Floras.

Var. **MICROPHYLLA**, Beck, l. c. (*Nasturtium microphyllum*, Boenn. in Reichb. Ic. Fl. Germ. et Helv. ii. f. 4360). It is usually found on the

margins of ponds and ditches, or about springs in woods; it has small roundish leaves, a slender stem and rather larger flowers than the type. It has been noticed at Wytham, Appleton, Wantage, Radley, Marcham, Aldermaston, Mortimer, in Windsor Park, &c.

Var. *SIFOLIA*, Beck, l. c. (*Nasturtium sifolium*, Reichb. Ic. Plant. Crit. ix. f. 1132), as restricted by Syme in E. B. 177, has a stout stem, large broad leaflets, the terminal one of which is lanceolate and not conspicuously wider than the lateral ones. It has been seen at Aldermaston and near Padworth, and by Mr. Bolton King near Windsor. The commoner form of this luxuriant state has the terminal leaflet broader, but otherwise not very different from the lateral ones; this appears to be the var. *LATIFOLIA* (*Nasturtium officinale*, var. *latifolium*, Bouvier, Flore des Alpes), and has been noticed at Wytham, near Hagborne, near Englefield, near Pangbourn, Southcote, Aldermaston, &c.

The Water Cress is common in all the bordering counties.

R. sylvestris, Bess. Enum. Pl. Volh. 27 (1822). *Creeping Water Rocket*.

Sisymbrium sylvestre, Linn. Sp. Pl. 657 (1753). *Eruca aquatica*, Ger. Em.

248. *Nasturtium sylvestre*, R. Br. in Aiton, Hort. Kew. ed. 2, iv. 110, in Index Kewensis, and in Fl. Oxf.

Top. Bot. 44. Syme, E. B. i. 175, t. 126. Nyman, 35. Fl. Oxf. 25.

Native. Paludal. Wet meadows, river-banks. Local. A. May–October.

First record. *Sisymbrium sylvestre*. Banks of the Thames near Windsor.

Common. Mr. Gotobed in the *Botanist's Guide* of 1805.

1. **Isis**. Wytham. Near Eynsham.

2. **Ock**. South Hinksey. Marcham, *Walker*. Denchworth, *Wait*. South Hinksey. Kennington. Radley. Abingdon. Near Dorchester.

3. **Pang**. Moulsoford. Streatley. Pangbourn.

4. **Kennet**. Reading. Burghfield. Theale.

5. **Loddon**. Banks of the Thames near Windsor. Common, *Gotobed*. Wargrave, *Melwill*. Near Sonning. Aston. Coleman's Moor. Loddon Bridge. Near Bray. Old Windsor.

This plant varies in the length of the pods and their pedicels, and also somewhat in the leaf-cutting; the more entire-leaved form appears to be var. *DENTATA* (*Nasturtium sylvestre*, var. *dentatum*, Koch, Syn. Fl. Germ. 38 (1845)).

Roripa sylvestris is not recorded in Townsend's *Flora of Hampshire*, but it will probably be found by the Blackwater. It is recorded for all the other bordering counties. The Binsey locality, cited for Berkshire in Britten's *Contributions*, is in Oxfordshire.

R. palustris, Bess. Enum. Pl. Volh. 27 (1822). *Yellow Cress*.

Sisymbrium palustre, Leyser, Fl. Hal. 166. *S. terrestre*, Curt. Fl. Lond. v.

t. 49. Sm. E. B. t. 1747. *Nasturtium palustre*, DC., Syst. ii. 191 (1821), and Index Kew. *N. terrestre*, R. Br. in Aiton, Hort. Kew. l. c. (1812).

Top. Bot. 44. Syme, E. B. i. 180, t. 117. Nyman, 36. Fl. Oxf. 26. Native. Paludal. Banks of rivers, ditches, meadows, pond-sides, and muddy places. A. May–October.

First record. *Sisymbrium terrestre*, Dr. Noehden, *Mavor's Agr. Berks*, 1809.

1. Isis. Wytham. Near Eynsham.
2. Ock. Hinksey, *Boswell*. Kennington. Marcham. Abingdon. Radley. Wallingford.
3. Pang. Streatley, *Pamplin*. Moulsoford. Pangbourn. Tilehurst.
4. Kennet. Newbury. Benham. Enborne. Greenham. Southcote.
5. Loddon. Sonning, *Tufnail*. Near Henley, *Stanton*. Near Windsor, *Bolton King*. Wargrave. Coleman's Moor. Hurst. Aston Ferry. Shottesbrooke. Loddon side. Bray. Blackwater. Near the Gas-works, Wellington College, on dryish ground. Near Blackwater Ford. Windsor, near the Home Park.

This plant has rather a wider range in the county than the preceding species, from which it may be known by its smaller flowers and more turgid pod. Near Abingdon a prostrate form has been found. It occurs in all the bordering counties.

R. amphibia, Bess. Enum. Pl. Volh. 27 (1822). *Great Yellow Cress*, *Water Charlocke*.

Sisymbrium amphibium, Linn. Sp. Pl. 657 (1753). *Nasturtium amphibium*, R. Br. in Aiton, Hort. Kew. l. c. *Rapistrum aquaticum*, Ger. Em. 234. *Armoracia amphibia*, Peterm. Fl. Lips. Excurs. 477.

Top. Bot. 45. Syme, E. B. i. 181, t. 128. Nyman, 35. Fl. Oxf. 25. Native. Paludal. Banks of rivers, ditches, watery places. Not uncommon and widely distributed. P. May–September.

First record. *Rapistrum*. There is another sort called *Rapistrum aquaticum* very common in all our Oxford ditches, *MS. in Lyte's Herball*, 1660. *Nasturtium amphibium*. Banks of the river (near Marlow), frequent, Mr. G. G. Mill in *Phyt. i.* (1843) 984.

1. Isis. Thames near Oxford, *Dyer*. Lechlade. Bablock Hythe. Appleton. Faringdon. Wytham meadows.
2. Ock. Marcham, *Walker*. Denchworth, *Wait*. Uffington. Wantage. Abingdon. Radley. Kennington.
3. Pang. Pangbourn. Moulsoford. Basildon. Reading.
4. Kennet. Theale. Padworth. Kintbury.
5. Loddon. River at Marlow, *Mill*. Sonning, *Tufnail*. Frequent about Henley, *Stanton*. Blackwater, *Penny*. Thames at Bisham, Medmenham, &c., *Britten*. Hurst. Wargrave, *Melwill*. Twyford.

Hurst. Arborfield. Coleman's Moor. Jouldern's Ford on Blackwater. Ruscombe. Shottesbrooke. Windsor. Virginia Water. Whistley Mill. Cookham. Old Windsor. Pcnd near Cockpoll Green.

This plant varies extremely in the shape and in the cutting of the leaves.

Several varieties have been named, the chief of which are—

Var. *INDIVISA*, Beck, l. c. Reichb. Ic. Fl. Germ. et Helv. ii. f. 4363 a. *Nasturtium aquaticum*, Wallr. Sched. Crit. 371, with the leaves entire and not auriculate, has been observed by myself at Appleton, Moulsham, &c.

Var. *AURICULATA*, Beck, l. c. *Nasturtium riparium*, Wallr. l. c. Reichb. l. c., f. 4363 β, has been seen near Pangbourn.

Var. *VARIIFOLIA* (DC. Syst. ii. 197. Reichb. l. c., f. 4363 γ, under *Nasturtium*). This form has pectinately-pinnatifid lower leaves, the upper leaves being sub-entire and ex-auriculate. It occurs at Wytham, Pangbourn, &c.

In the Blackwater a lax form has been observed which rather suggested a hybrid with *R. palustris*.

R. amphibia occurs in all the bordering counties.

BARBAREA, R. Br. in Aiton, Hort. Kew. ed. 2, iv. 109 (1812).

B. vulgaris, R. Br. l. c. *Winter Cress*.

Erysimum Barbarea, Linn. Sp. Pl. 660 (1753). *E. lyratum*, Gilib. Fl. Lituan. ii. 59 (1782). *Barbarea*, Gerard, 188. *B. lyrata*, Asch. Fl. Brand. 35. *Barbarea Barbarea*.

Top. Bot. 43. Syme, E. B. i. 171, t. 120. Nyman, 31. Fl. Oxf. 23.

Native. Paludal. Banks of rivers, ditches, moist places, rather common and generally distributed. A noticeable feature of the Kennet banks. B. April-July.

First record. *Winter Cress* upon ye banks of ditches everywhere about Oxford, MS. in Lyte's Herball, 1660. *Erysimum barbarea*, Dr. Noehden, Mavor's Agr. Berks, 1809.

B. vulgaris is described in Syme, l. c., as having 'the pods in a dense raceme, generally ascending, sometimes spreading when young.' Syme also says that 'a form [var. *divaricata*] occurs in shady places with the young pods arched and spreading. It has often been mistaken for *B. arcuata*, but is apparently a state of *B. vulgaris*.' Syme's typical plant is the rarer form with us.

Var. *DIVARICATA*, Dyer [Nómen Solum] in Britt. Contr. (1871), where it is mentioned as having been observed by Mr. W. T. Dyer by the side of the Gulf stream near Oxford.

This form, which is common by our river-banks, has the pods

spreading when young. It may perhaps be scarcely distinct from the following plant.

Var. *DECIPIENS*, with the ripe pods arcuately divaricate. I can only separate from *B. arcuata*, Reichb. in Flora, v. (1822) 296, by its seeds, which are similar to those of *B. vulgaris*, being about one and a half times as long as broad, whereas in *B. arcuata* (of which I have examined one of Reichenbach's type plants) the seeds are smaller and narrower, being twice as long as broad. I have not observed this shaped seed in any *vulgaris* forms, but *B. arcuata* itself may not be specifically distinct. Var. *decipiens* is not uncommon and is widely distributed. I have noted it from Ferry Hinksey, from the Ock side near the Noah's Ark, by the Genge brook near Stevenon, from the Blackwater at Jouldern's Ford, from the Kennet near Southcote, from the Emborne side near Sandleford, and from the Thames side at Pangbourn, Wargrave, &c. Specimens were sent by the Author to the Bot. Exch. Club in 1893.

Var. *TRANSIENS*. On dry banks and in stiff clayey fields and on barren ground this occurs as a copiously branching plant, which has leaves with a rather oblong terminal lobe, the lateral linear lobes much exceeding in length the breadth of the terminal lobe. It forms a passage to *B. intermedia*, to which I was inclined to refer it, but the flowers are large and the beak of the fruit not very short. It has been noticed near Challow in the Ock district, near Englefield in the Pang, and from the neighbourhood of Newbury and Benham in the Kennet district. Unnamed specimens were sent to the Bot. Exch. Club in 1892.

B. vulgaris occurs in all the bordering counties.

[*B. STRICTA*, Andr. in Bess. Enum. Pl. Volh. 72 (1822).

This was admitted into my Flora of Oxfordshire on the authority of Mr. A. French, who reported it from the banks of the Thame, near the town of that name; I have subsequently seen Mr. French's specimen, and should refer it to *B. vulgaris*. A form of *B. vulgaris* which simulates *B. stricta* is *B. rivularis*, Mart. Fl. du Tarn, 44; see Lamotte, Fl. du Plateau, 71.

Surrey is the only county bordering on Berkshire for which *B. stricta* is recorded.]

**B. INTERMEDIA*, Boreau, Fl. du Centre Fr. ed. 1, ii. 48 (1840).

Comp. Cyb. Br. 484. Syme, E. B. i. 174, t. 123. Nyman, 31. Fl. Oxf. 23. Colonist or casual. Cultivated fields. Rare. B. April-June. First found in Berkshire by the Author in 1892.

8. Pang. Near Bucklebury.

4. Kennet. Near Newbury in a clover-field, 1892.

B. intermedia, which is treated as synonymous with *B. vulgaris* in Index Kewensis, is recorded for Oxfordshire, Surrey, and Hampshire.

**B. PRAECOX*, R. Br. l. c. *American Cress*.

Erysimum vernum, Miller, Gard. Dict. ed. 8 (1768). *E. praecox*, Sm. Fl. Brit. ii. 707. *Barbarea verna*, Asch. Fl. Brand. 36 (1864).

Syme, E. B. i. 175, t. 124. Nyman, 31. Fl. Oxf. 23.

Alien. Waste ground. Rare. B. April-October.

First record. *B. praecox*, Wargrave, Mr. J. C. Melvill in *Britt. Contr.* 1871.

2. Ook. Denchworth, *Wait*. Waste ground, Grandpont. Didcot. Uffington, by the railway.

4. Kennet. Speen, *Jackson*. Near Reading, *Tufnail*. Plentiful about Newbury Station, where it is quite naturalized.

5. Loddon. Wargrave in two places, *Melvill*. Near Wellington College, *Penny*. By the railway at Twyford and Maidenhead, and near Wellington Coll. Station. On waste ground between Reading and Sonning.

Var. *BREVISTYLA* (Jord. Diag. 102 as a species), known by the leaves having from six to ten pairs of lateral lobes, while the pods are only from 45 to 50 millimetres in length. In var. *LONGISILIQUA* (Jord. l. c. 103 as species), the leaves have only from three to six pairs of lateral lobes, and the pods are from 60 to 70 millimetres long. The former plant has been seen at Newbury and Maidenhead. I am rather doubtful whether the relative length of the pods will always be found to coincide with the relative number of lateral leaf-segments.

B. praecox is recorded for all the bordering counties except Buckingham and East Gloucestershire.

Dr. G. Beck states that *Barbarea*, Beckm. Lex. Botan. 33 (1801), is the older name for the genus, but I have not been able to refer to the work mentioned.

ARABIS, Linn. Gen. Pl. n. 732.

A. hirsuta, Scop. Fl. Carn. ed. 2, ii. 30 (1772). *Hairy Tower Mustard*.

Turritis hirsuta, Linn. Sp. Pl. 666. *Arabis sagittata*, DC. Fl. Fr. Supp. 592.

Top. Bot. 42. Syme, E. B. i. 167, t. 116. Nyman, 32. Fl. Oxf. 24.

Native. Rupestral. Walls, dry banks, &c. Local and rare. B. May-August.

First record. *A. hirsuta*. Walls at Hoe Benham, Mr. H. Reeks in *Britt. Contr.* 1871.

3. Pang. Sparingly on Streatley Downs, *Bennett*, *Journ. Bot.* (1873) 138. Near East Ilsley on a dry bank. On Curridge Common near Hermitage.

4. Kennet. Walls at Hoe Benham, *Reeks*. Inkpen, near Walbury Camp.

5. Loddon. Sonning Cutting, *Tufnail*.

I have not seen this plant on the Coralline Oolite in Berkshire, although it is found on that formation about Wheatley and Shotover in Oxfordshire.

A. hirsuta is found in all our bordering counties.

A. perfoliata, Lam. Enc. Méth. i. 219 (1783). *Tower Cress*.

A. glabra, Bernh. Syst. Verz. Erf. 195 (1800). *Turritis glabra*, Linn. Sp. Pl. 666.

Top. Bot. 43. Syme, E. B. i. 169, t. 119. Baxt. t. 430. Nyman, 32. Fl. Oxf. 24.

Native. Septal and viatical. Hedge-banks and sandy waysides in open sunny situations. Local and rare. B. May-July.

First record. *Turritis glabra* by the roadside near Maidenhead, Mr. E. Forster in *Bot. Guide*, 1805.

3. Pang. Near Hermitage, Jackson.

5. Loddon. By the roadside near Maidenhead, *Bot. Guide*. In a coppice at the top of Cookham Down extremely plentiful, *Mill*. On a wall near Loddon Bridge, *Stansfield*. Rather plentiful in a sandy lane between Loddon Bridge and Twyford, where it was first noticed by Miss E. W. J. Melvill, and where it is still found.

This plant is scattered through all the bordering counties. In a tabulated list it would therefore appear to be equally common with the buttercup and daisy, whereas the *Arabis* occurs in a few localities only in each county, while the two latter species are found in every parish and outnumber the *Arabis* by millions.

**A. ALBIDA, Stev. in Fisch. Cat. Hort. Gorenk. 51 (1812).

Alien. Occurs as a garden straggler on village walls, but has no pretension to be considered a native plant. It has been seen at Streatley, Abingdon, &c.

[A. TURRITA, Linn. Sp. Pl. 665 (1753). *Tower Wall Cress*.

Syme, E. B. i. 169, t. 118. Fl. Oxf. 24. Nyman, 32.

Formerly on walls at Oxford, but only as an introduced plant, and now extinct.]

CARDAMINE, Linn. Gen. Pl. n. 727 (Tournefort, t. 109).

[C. BULBIFERA, Crantz, Class. Crucif. 127 (1769). R. Br. Aiton, Hort. Kew. ii. iv. 401.

Dentaria bulbifera, Linn. Sp. Pl. 653, and Ger. Em. 984. Syme, E. B. i. 156, t. 107.

Occurs in woods near Loudwater in Bucks, also in Surrey, and I believe in Hants, but has not been found in Oxfordshire, and is not recorded for Wilts or Gloucestershire.]

C. amara, Linn. Sp. Pl. 656. *Bitter Cress*.

Nasturtium aquaticum amarum, Park. 1239.

Top. Bot. 39. Syme, E. B. i. 158, t. 108. Nyman, 37. Fl. Oxf. 27.

Native. Paludal. River-banks, osier-holts, &c. Locally common. P. March-June.

First record. Banks of the Thames near Windsor, rare, Mr. Gotobed in the *Bot. Guide*, 1805.

2. Ock. In the meadows about Blewbury, but not very common, *Lousley* in *Russell's Cat*. Thames meadows between Ifley and Sandford, and occurring at intervals by the Thames between Sandford and Mongewell.

3. Pang. Pangbourn, *Tufnail*. Bradfield, *Jenkinson*. Moultsford. Very abundant and beautiful by the Pang at Pangbourn and between Pangbourn and Tidmarsh. Plentiful near the Thames

at Basildon and sometimes with pink flowers. Between Bradfield and Bucklebury. Purley.

4. **Kennet.** Near Newbury, *Bicheno*, see *Winch add.* in *New Bot. Guide*. Chamberhouse Coppice, *Russell's Cat.* Thatcham, *Jackson*. Burghfield Meadows, *Tufnail*. Greenham Common, *Weaver*. Padworth. Aldermaston.
5. **Loddon.** Banks of the Thames near Windsor, rare, *Bot. Guide*. Cookham, &c., *Britt. Contr.* Henley, Wargrave, *Stanton*. Near [Blackwater] Ford, *Penny*. Marsh near Sindlesham Mill, *Salmon*. Hurst, *Melville*. Near Coleman's Moor. Near Bray. Near Bisham. Arborfield.

Var. **LILACINA**, Buch. White, *Scott. Nat.* (1889) 299. A form with pinkish petals occurs with the type and is not uncommon about Basildon. In some alder gullies near Aldermaston a form or variety occurs, which is analogous to the var. *umbrosa* of *C. flexuosa*, and to which it bears considerable resemblance. It has larger leaves than the type, and the margins are much more angled, while the leaf is of much thinner texture: it may be distinguished as the form or var. *umbrosa*. I have not seen in Britain the hairy variety—var. *hirta*, Wimm. et Grab. *Fl. Siles.* ii. 265—which is not unfrequent on the continent, and is figured in *Flora Danica*, t. 148, for *C. hirsuta*, L.

Cardamine amara is found in all the bordering counties.

C. pratensis, Linn. *Sp. Pl.* 656. *Cuckoo Flower*, *Lady's Smock*.

Cardamine, Gerard, 201. *Flos Cuculi*, Dodoens, *Pempt.* 592.

Top. Bot. 39. Syme, *E. B. i.* 158, t. 109. Baxt. t. 141. Nyman, 36. *Fl. Oxf.* 26.

Native. Pratal. Meadows, upland grassy fields, chalk downs, thickets, damp woods, marshes, &c. Common and generally distributed. P. July.

First record. *C. pratensis*. Dr. Noehden, in *Mavor's Agr. Berks*, 1809.

With double flowers near a small rivulet in Bagley Wood, Mr. E. B. Hewlett in *Baxter's Phaen. Bot.* n. 141.

The common and widely distributed plant in Berkshire is not the true Linnean *Cardamine pratensis* as restricted by Prof. A. Kerner von Marilaun in the *Schedae ad Floram Exsicc. Austro-Hungar.* iii. (1884) 73, but is var. **PALUSTRIS** (Peterm., in *Rabenh. Bot. Centralb.* i. (1846) 47, as a species), which is figured in *Sm. E. B. t.* 776, and reprinted in *Syme, E. B. t.* 109. This is a plant with pinnate radical leaves, with three pairs of distinctly stalked cordate leaflets, and usually lilac flowers. Petermann's plant is of more frequent occurrence in western and southern Europe than the genuine *C. pratensis*, but occurs with it here and there. The true *C. pratensis*, which is figured in the *Flora Danica*, fasc. xvii. t. 1039 (1790), has radical leaves with

five to eight pairs of sessile leaflets, which are rounded at the base but not cordately emarginate, and the flowers are usually white. This is said to be the only form found in Labrador and Lapland and the extreme north of Europe. Further southwards in western and southern Europe it is associated with *C. palustris*, becoming less common, and being at last superseded by it. Specimens of *C. palustris* from the Binsey meadows were sent by the Author to the *Bot. Exch. Club* in 1893. See *Report*, 400.

The double-flowered plant sometimes occurs, as in Bagley Wood, *Hewlett in Baxter*. Miss F. M. Parker found it at Fyfield, Mr. Boswell saw it near Sunningwell, and I have seen it near Coles Pits, near Wantage, near Pusey, near Abingdon, &c.

Var. *DENTATA* (Schultes, Obs. Bot. 126, as a species) appears to be only a luxuriant form of *C. palustris*. I have seen it in Bagley Wood, in Aldermaston Soak, in Windsor Great Park, &c.

Var. *FRAGILIS*, Lloyd, Fl. Ouest. Fr. 36. To this I refer a form with white flowers and narrow brittle leaves, the upper of which are cut into narrow segments. It has been noticed in upland pastures at Challow, at Coleman's Moor, near Coleshill, near Stubbing's Heath, and in various other places; it flowers later and produces seed-pods more frequently than the lowland plant.

The true *C. pratensis* of Linnaeus was gathered by me in Cothill bog, and submitted for examination to Prof. A. Kerner von Marilaun and Dr. R. v. Wettstein, who agreed with my determination. I have also seen it on Pinkney's Green near Maidenhead. Although the Austrian botanists speak in no doubting manner as to the well-defined characters which separate *C. pratensis* from *C. palustris*, my own more limited experience leads me to think that these characters are not sufficiently permanent or marked to justify our regarding the two forms as distinct species. The examination of a large series of specimens shows that a plant with three pairs of leaflets may, or may not, have them cordate, and may, or may not, have them sessile, while the flowers in each series may be white or lilac.

Cardamine pratensis (in the aggregate sense) is a conspicuous plant in our meadows in the spring, but rarely produces fruit. The leaflets become disarticulated and are carried about the meadows during flood-time; with the sinking of the water they are brought into contact with the soil, and then put forth rootlets from the under-surface and forms a new plant, so that the species is practically independent of seeds for its propagation.

C. pratensis is found in all our British counties.

C. hirsuta, Linn. Sp. Pl. 655 (1783). *Hairy Bitter Cress*.

Top. Bot. 39. Syme, E. B. i. 160, t. 110. Nyman, 37. Fl. Oxf. 26.

Native. Glareal. Sandy ground, walls, ditch-banks, railway ballast,

&c. Common on gravelly soil and widely distributed. A. March-August.

First record. *C. hirsuta* in *Russell's Cat.* 1839, with no locality given and with *C. flexuosa* omitted.

1. **Isis.** Wytham. Coleshill. Cumnor. Buckland. Buscot, &c.
2. **Ock.** Marcham, *Walker*. Denchworth, *Wail*. South Hinksey, *Fl. Oxf.* Didcot. Challow. Radley. Wantage. Steventon. Aston Tirrel, &c.
3. **Pang.** On a wall between Basildon and Pangbourn, *Bennett, Journ. Bot.* (1873) 138. Moulsoford. Tilehurst. Bradfield. Tidmarsh. Hampstead Norris, &c.
4. **Kennet.** Newbury. Kintbury. Hungerford. Chilton Foliat. Shefford. Lambourn, &c.
5. **Loddon.** Cookham, *Chandler*, 1865. Park Place, frequent, *Stan- ton*. Bracknell. Wokingham. Windsor Park. Ruscombe. Twyford. Maidenhead. Wargrave, &c.

Var. *UMBROSA*, Lec. et Lamotte, *Cat. Plateau*, 64. A hairy form, with six stamens, was found by me on gravelly alluvium by the side of a shady stream near Bradfield; the sub-sessile stigma and shorter pedicels showed that it was not *C. flexuosa*, which also grew there. It is either a hybrid *hirsuta* x *flexuosa* or an intermediate form. The small plant which occurs on walls and dry heaths is var. *micrantha*, Gaud. A large form which occurred on mud thrown out of a ditch at Bray would appear to be the var. *maxima*, Fisch. *Cat. Hort. Gorenk*, 1808. *C. multicaulis*, Hoppe, in Schur, *Enum. Pl. Transs.* 47, seems to be only a much-branched form; plants exactly similar to a type specimen of Hoppe have been gathered on railway ballast near Didcot. Brébisson in *Flore de la Normandie*, 28, 1869, suggests that Hoppe's plant may be a hybrid of *hirsuta* and *flexuosa*.

C. hirsuta occurs in all the bordering counties.

C. flexuosa, With. *Bot. Arr.* ed. 3, iii. 578 (1796).

C. sylvatica, Link in Hoffm. *Phyt. Bl.* i. 50 (1803). *C. parviflora*, Stokes in With. *l.c.* ed. 2, ii. 286 (1787).

Top. Bot. 40. Syme, *E. B. i.* 161, t. III. Nyman, 37. *Fl. Oxf.* 27.

Native. Septal. Damp shady places, brook-sides, &c. A. or B. or P. March-August, and again in October.

First record. *C. sylvatica*. Mr. H. C. Watson in *Britt. Contr.* 1871.

1. **Isis.** Wytham, &c.
2. **Ock.** Bagley. Marcham. Common by the watery ditches about East and West Hanney.
3. **Pang.** Near Beedon, *W. M. Rogers*. Hermitage. Benham. Tidmarsh, &c. Very fine near Bradfield. Ashampstead Common.
4. **Kennet.** Sandleford Priory. Burghfield. Newbury. Near Enborne Street (var. *umbrosa*).

5. Loddon. Sonning railway cutting, *Tynail*. Bracknell. Ascot. Bagshot. Loddon Bridge. Wokingham. Finchampstead. Virginia Water and Windsor Great Park. Binfield. High Standing Hill. Cranbourn Park. Warren Row.

This plant is much commoner in the Loddon district on the Bagshot Sands than on the other formations, but it is generally distributed in suitable localities.

Var. *UMBROSA* (Gren. & Godr. Fl. Fr. i. 110 as a var. of *C. sylvatica*), is a large shade-grown branching form with the leaves much angled or cut, which when out of flower bears a good deal of superficial resemblance to the shade-form (var. *umbrosa*) of *C. amara*, with which it grew in Aldermaston Soak. Some flowerless specimens of the latter form were accidentally distributed for the former by the author through the *Bot. Exch. Club* in 1888. I have also seen it at Tilehurst, Padworth, &c.

C. flexuosa, which is placed as synonymous with *C. hirsuta* in Index Kewensis, occurs in all the bordering counties.

[*C. IMPATIENS*, Linn. Sp. Pl. 655 (1753). Syme, E. B. i. 161, t. 112.

Error. This plant is included in Mr. Pamplin's list of Streatley plants, which appeared in the *Phyt.* v. (1854) 154, but he probably mistook *C. flexuosa* for it, since he mentions neither *C. hirsuta* nor *flexuosa*.

The true *C. impatiens* occurs in Surrey only of the counties bordering upon Berks.]

***LUNARIA ANNUA*, Linn. Sp. Pl. 653 (1753). *L. biennis*. Moench. Meth. 261. *Honesty*.

Alien. By railway near Pangbourn.

ALYSSUM, Linn. Gen. Pl. n. 722 (Tournefort, t. 104).

***A. INCANUM*, Linn. Sp. Pl. 650 (1753).

Berteroa incana, DC. Syst. ii. 291. *Farsetia incana*, R. Br. in Aiton, Hort. Kew. ed. 2, iv. 97.

Comp. Cyb. Br. 482. Reichb. Ic. Fl. Germ. et Helv. ii. f. 4284. Nyman, 50. Syme, E. B. i. 224.

Alien. Waste places. Very rare and not permanent. A. or B. July-Sept. First record. *A. incanum*, near Wellington Coll., 1874, *Rev. C. W. Penny*, in *Herb. Brit. Mus.*

2. Ock. Plentiful about Didcot Station. On rubbish heaps at Grandpont in 1891. By the roadside near the entrance to Sheepstead House.

4. Kennet. Newbury, by the railway.

5. Loddon. Field near Wellington College in 1874, *Penny*. By the railway at Maidenhead.

**A. Alyssoides*, Linn. Syst. ed. 10, 1130 (1758-9).

A. calycinum, Linn. Sp. Pl. ed. 2, 908 (1763). *Clypeola alyssoides*, Linn.

Sp. Pl. 652 (1753). *Alyssoides*, Tournefort.

Comp. Cyb. Br. 135. Syme, E. B. i. 196, t. 139. Nyman, 57. Fl. Oxf. 34. Colonist or alien. Cornfields and waste places. Rare. A. May-August,

First found at Culham in Berkshire by the author in 1891.

2. **Ook.** Waste ground at Grandpont and field near the Ridgeway above Letcombe.

4. **Kennet.** Casual by railway at Newbury, *Weaver* in 1893.

5. **Loddon.** Rather plentiful in some cornfields between Culham Court and Great Marlow, and in a field near Maidenhead. In *Well. Coll. List* for 1894 it is reported from Tangleys, near Wixenford, but I am not sure if the locality is in Berkshire.

A. Alyssoides does not appear to be recorded from Bucks or East Gloucestershire.

EROPHILA, DC. Syst. ii. 356 (1821).

E. vulgaris, DC., l. c. *Whitlow Grass, Nailwort.*

Paronychia vulgaris, Ger. Em. 624. *Draba vulgaris*, Dill. *D. verna*, Linn. Sp. Pl. 642. *Erophila verna*, E. Meyer.

Top. Bot. 38. Syme, E. B. i. 139, t. 134, f. 1. Baxt. t. 38. Nyman, 54. Fl. Oxf. 33.

Native. Glareal. Walls, dry banks, sandy and gravelly fields, &c. Common and generally distributed. A. February–May.

First record. *Draba verna*, *Mavor's Agr. Berks*, 1809.

Our botanists have only admitted three species of *Erophila* as natives of Britain, and one of these is apparently confined to Ben Lawers and perhaps another locality in Scotland. The other two species are recorded for Berkshire, and are formed of two groups of the micro-species of Jordan, artificially arranged into two so-called species, the characters by which they are practically sorted into bundles being derived from the pods; the plants with a long pod (a siliqua) being grouped under *Erophila vulgaris*, and plants with a short broad pod (a silicula) being grouped under *E. praecox*. The long-podded plants are the more common and more widely distributed.

Aggregate *E. vulgaris*, which is found in all the bordering counties, is one of our most polymorphic plants. M. Jordan made most painstaking observations of its various forms over a period of many years, and described fifty-three species in his *Diagnoses*. In the *Icones ad Floram Europae*, Jordan and Fourreau figured twenty species. M. Jordan found these micro-species kept constant during many years of cultivation (some after as long as twenty years), nor did he find that intermediates occurred. He also states that only a few species are found growing together, usually not more than four; and more frequently a single species, occurring in millions of individuals, occupies the particular area which one may visit year after year and find occupied by the same form. It was the intention of the late Dr. Romanes to join with me in the prosecution of some experimental cultivations of

our local forms, as he thought that these might throw light on the mutual infertility which he considered closely allied species must possess if the species were not to be broken down. His premature and lamented death, however, prevented this line of research being followed up, but so far as my experiments went they proved the constancy of two or three of our local forms.

It is quite certain that the figures in Jordan's *Icones* do not exhaust the forms which are to be found even in a single county. I have been able to identify *E. majuscula*, a large form often occurring in sandy arable fields, as at Inkpen and near Lechlade, *E. stenocarpa* on walls at Kennington, *E. Bardini* from Binsey and Wytham, and *E. Ozanoni* from Shrivenham. These belong to the long-fruited group, but the last plant has the fruit rather broader than the plant in Schultz' *Herb. Normale*. Of the broad-fruited forms I have been able to identify the true *E. brachycarpa* and *E. spathulæfolia*, the latter having broad, large, subentire leaves; this also occurs at Wytham and Binsey.

I cannot claim certainty for the foregoing determinations, as without type specimens it is most difficult in such critical forms to be certain of the correct identification.

E. praecox, DC. Syst. ii. 357 (1821).

E. brachycarpa, Jord. Pugill. 9. *Draba verna*, var. *brachycarpa*, Tenore.

Draba praecox, Stev. in Mém. Soc. Nat. Moscow, iii. (1812) 269?

Comp. Cyb. Br. 481. Syme, E. B. i. 190, t. 134, f. 2. Fl. Oxf. 33. Nyman, 54.

Native. Rupestral. Walls. Locally common. A. February-May. First record. *E. brachycarpa*. The author in *Rep. Bot. Rec. Club*, 1880; see also *Fl. Oxf.* 33, 1886.

1. Isis. Cumnor, Druce in *Herb. Brit. Mus.* Wytham. Buckland. Botley road in Berkshire.

2. Ock. Cherbury Camp. South Hinksey. Marcham. Besilsleigh. Dry Sandford. Kennington.

5. Loddon. Early Heath, Tufnail.

E. praecox is recorded for all the bordering counties except E. Gloucestershire.

[ERROR. **DRABA INFLATA**. Found plentifully on a bank opposite to Reading Castle, April 27, 1855, by H. A. S. [Stowell] in *Phyt.* (1856) 334. This was possibly a form of *E. praecox*, certainly not the true *E. inflata*. By 'Reading Castle' Reading Abbey was probably meant. There is now no Reading Castle.]

COCHLEARIA, Linn. Gen. Pl. n. 720 (Tournefort, t. 101).

C. Armoracia, Linn. Sp. Pl. 648. *Horseradish*.

Armoracia rusticana, G. M. Sch. Fl. Wett. ii. 426 (1800). *Roripa rusticana*, Gren. & Godr. Fl. Fr. i. 27. *Raphanus rusticana*, Gerard, 187

Comp. Cyb. Br. 481. Syme, E. B. i. 183, t. 129. Nyman, 51. Fl. Oxf. 33.

Denizen. Paludal, &c. River-sides, waste places. Not uncommon. P. May-September.

First record. *C. armoracia*. Dr. Noehden, *Mavor's Agr. Berks*, 1809.

1. **Isis.** Near Bablock Hythe. Buscot. Near Wytham. Near Ashbury.

2. **Ook.** [Gulf Stream, Oxford, *Dyer*.] North Moreton, *Sister Jane Frances*. Between Iffley and Sandford, *Fl. Oxf.* Upton. River-bank near Iffley. Near Nuneham. Wantage. Pusey. Kingston Bagpuze. Boar's Hill. Marcham. Abingdon. Frilford. Wootton. Shippon. Kennington, &c.

3. **Pang.** Hampstead Norris orchard, *Lousley*. Streatley, *Pamplin*. Pangbourn. Bradfield. River-side between Streatley and Basildon and between Pangbourn and Reading. Moulsoford. Near Compton.

4. **Kennet.** Newbury. Kintbury.

5. **Loddon.** Sonning. Wargrave. Aston Ferry. Bisham. Bray. Old Windsor. Wellington College. Blackwater.

This plant is well naturalized by the Thames' side, but I have never observed it with ripe fruit.

C. Armoracia is found, more or less naturalized, in all the bordering counties.

HESPERIS, Linn. Gen. Pl. n. 731 (Tournefort, *Inst.* t. 108).

***H. matronalis**, Linn. Sp. Pl. 663 (1753). *Dame's Violet*.

H. inodora, Linn. Sp. Pl. 727 (1762) and Sm. E. B. t. 731.

Comp. Cyb. Br. 485. Syme, E. B. i. 150, t. 103. Nyman, 59. Baxt. t. 425. Fl. Oxf. 28.

Alien or denizen. River-sides, woods, and waste ground. Rare. P. May-July.

1. **Isis.** Wytham Wood near the Abbey, 1886, and stream-side near Wytham.

3. **Pang.** River-bank near Streatley. Plentiful in a wood near Tilehurst, *Tufnail*.

Hesperis, more or less naturalized, occurs in all the bordering counties.

** **WILCKIA MARITIMA**, Scop. *Introd.* 317 (1777).

Malcomia maritima, R. Br. in Aiton, *Hort. Kew.* ed. 2, iv. 121 (1812).

Cheiranthus maritimus, Linn. *Cent. Pl.* i. 19.

Comp. Cyb. Br. 4, 85. Reichb. *Ic. Fl. Germ. et Helv.* ii. t. 76, f. 4372. Nyman, 39.

Alien. Waste ground. Rare. A mere garden outcast, as at Grandpont, at Newbury, by the railway near Pangbourn, &c.

SISYMBRIUM, Linn. Gen. Pl. n. 728 (Tournefort, t. 109).

S. Thalianum, Gay in Ann. Sc. Nat. vii. (1826) 399. *Turkey pod*, Mavor.

Arabis Thaliana, Linn. Sp. Pl. 665. *S. Thaliana*, Hook. fil. Stud. Fl. 27 (1870).

Top. Bot. 41. Syme, E. B. i. 163, t. 115. Nyman, 45. Fl. Oxf. 30.

Native. Rupestral, glareal, ericetal. Sandy fields, heaths, and walls.

Locally abundant. A. April and May, and sometimes in September.

First record. *Draba siliquosa similis planta praecox annua*, nobis. Provenit in agris frumentaceis humidis passim circa Oxonium, Morison Hist. Ox. ii. 235, 1680. *Arabis thaliana*, Dr. Noehden, Mavor's Agr. Berks, 1809.

1. **Isis.** Carswell, Miss M. Niven. Faringdon. Cumnor. Near Besilsleigh.
2. **Ock.** 'South Hinksey, seems rare here,' Boswell MS. Marcham, Walker. Denchworth, Wait. Frilford. Sunningwell. Cothill. Tubney. Besilsleigh. Near Culham.
3. **Pang.** Streatley, Pamplin. About Bradfield, Jenkinson. Abundant near Bucklebury. Aldworth. Tidmarsh. Frilsham. Withy Coppice near Basildon. Hermitage. Tilehurst. Purley.
4. **Kennet.** Near Newbury, Weaver. Silchester. Kintbury. Curridge. Burghfield. Aldermaston. Mortimer. Theale. Bucklebury Common. Welford. Snelsmore Common. Beenham. Wickham Heath. Padworth. Ufton. Hampstead Marshall. Southcote.
5. **Loddon.** Twyford, Fl. Oxf. Finchhampstead, Penny. Hailey, Stanton. Windsor, Bolton King. Wargrave. Maidenhead. Hurley. Ruscombe. Sonning. Hurst. Binfield. Bracknell. Wokingham. Sunninghill. Ascot. Windsor Park. Bagshot Heath. Bray. Waltham. Pinkney's Green. Cookham.

Although so common on the dry sandy fields of some parts of the county it is rare or absent on the clay, so that in the Isis district it would be classed as one of the less common plants. It is also scarce in some portions of the Vale, and is practically absent from the upper grassy chalk downs.

The plant forms a connecting link with the genus *Arabis*, and occurs in all the bordering counties.

S. officinale, Scop. Fl. Carn. ed. 2, ii. 26 (1772). *Hedge Mustard*.

S. officinarum Erysimum, Crantz, Stirp. Austr. i. 54 (1769). *Erysimum vulgare*, C. B. Pin. 100. *E. officinale*, Linn. Sp. Pl. 660.

Top. Bot. 45. Syme, E. B. i. 143, t. 96. Nyman, 44. Fl. Oxf. 30.

Native. Viatical and agrestal. Roadsides, waste places, and arable ground. Common and generally distributed. P. April–September.

First record. *Hedge Mustard*, near Ockingham, *Spencer's Complete British Traveller*, 1771. *Erysimum officinale*, Dr. Noehden, *Mavor's Agr. Berks*, 1809. Very plentiful about Blewbury, &c., Mr. J. Lousley in *Russell's Cat.* 1839.

This species is one of our most widely distributed weeds, and may be found by our dustiest and most sunny roadsides. Notwithstanding the wide range of habitats, the plant is not very variable, but two varieties, based on the fruit being hairy or glabrous, are described; the former is the one almost universally found in the county; the latter may have been introduced.

Var. *LEIOCARPUM*, Guss. Fl. Sic. Syn. 188, and DC. Syst. ii. 460.

Described by Jordan in the *Diagnoses*, 139, as a species; he cultivated it from seeds sent him by Todaro from Sicily, and found certain characters were constant. He says it differs, not only in the glabrous siliques, but in the longer style and shorter seeds. It occurs by the railway near Reading, and near Sandhurst, and Mr. A. B. Jackson has seen it near Newbury.

Spencer's record of *Hedge Mustard* may possibly have meant *Arabis perfoliata*, as it would have been scarcely necessary to have given a locality for such a common plant as *S. officinale*, which is found in all the bordering counties.

***S. POLYCERATIUM*, Linn. Sp. Pl. 658 (1753).

Comp. Cyb. Br. 484. Syme, E. B. i. 144, t. 97. Nyman, 44. Alien. Casual. On ballast by the railway at Didcot.

S. Sophia, Linn. Sp. Pl. 659 (1753). *Flixweed*.

Sophia Chirurgorum, Gerard, 910. *Sophia*, Brunfels.

Top. Bot. 46. Syme, E. B. i. 145, t. 98. Nyman, 43. Fl. Oxf. 29.

Native. Viatical. Waysides, sandy fields. Local and rare. A. June-August.

First record. *Sophia*. Upon olde walls about Oxford everywhere, *MS. in Lyte's Herball*, 1660.

1. *Isis*. About Wytham Mill.
2. *Ock*. Botley, *Dyer in Rep. of Bot. Exch. Club*, 1867. *Marcham, Walker*. Bagley Wood, *F. W. Bennett*. By waysides and in corn-fields near Cothill and Dry Sandford, where it is probably native. *Ferry Hinksey*, 1888. *Frilford*, 1884. *Didcot*. Casual.
4. *Kenet*. A casual at Newbury railway and cultivated fields near the Workhouse, Newbury, *Weaver*.

Mr. Dyer's locality was probably in Oxfordshire. Our plant is the typical form; the subglabrous form has not been noticed in Berkshire.

I have no record for Bucks or Hampshire.

- **S. LOESELII**, Linn. Amoen. iv. 279 (1755). Jacq. Fl. Austr. 334. Nyman, 43. *S. hirsutum*, Gilib. Fl. Lituan. l. c. 74. *Turritis Loeselii*, R. Br. in Aiton, Hort. Kew. iv. 109.

Alien. Casual. Waste places. Rare. A. or B. August–September.

2. Ock. By the railway near Oxford and at Didcot.

- **S. ALTISSIMUM**, Linn. Sp. Pl. 659 (1753), not of the Linn. Herb., where the plant is *S. orientale*.

S. Sinapistrum, Crantz, Stirp. Austr. ed. 2, ii. 52 (1763). *S. pannonicum*, Jacq. Coll. i. 70.

Comp. Cyb. Br. 484. Reichb. Ic. Fl. Germ. et Helv. ii. f. 4406.

Alien. Casual. Waste places. Rare. A. or B. July.

2. Ock. On rubbish heaps at Grandpont, 1895. Didcot, 1895.

- **S. IRIO**, Linn. Sp. Pl. 659 (1753). *London Rocket*.

Irio laevis Apulus, *Erucae folio*, Col. Ephr. 264 (1616).

Cyb. Br. i. 151, 'Oxford.' Syme, E. B. i. 145, t. 99. Nyman, 43. Baxt. t. 146. Fl. Oxf. 30.

Alien. Casual. Viatical. Very rare. A. May–June.

2. Ock. Rubbish heaps at Grandpont, 1890; on ground now built upon.

5. Loddon. Roadsides near Eton, *Gotobed* in *Bot. Guide*, 38 (1805). This locality was very likely in Buckinghamshire.

The vernacular name arose from its being the plant which sprung up so abundantly over London after the Great Fire in 1666. See Merrett's *Pinax* of that year, p. 66.

The plant comes up yearly in the Botanical Gardens at Oxford from self-sown seed, and is occasionally found in the vicinity of the city.

It does not appear to have been noticed in Hants or East Gloucestershire.

- S. ALLIARIA**, Scop. Fl. Carn. ed. 2, ii. 26 (1772). *Hedge Garlic*, *Jack by the Hedge*, *Sauce Alone*.

Alliaria, Gerard, 650. *Erysimum Alliaria*, Linn. Sp. Pl. 660. *Alliaria officinalis*, Andr. in M. Bieb. Fl. Taur. Cauc. iii. 445 and DC. Syst. ii. 489.

Top. Bot. 47. Syme, E. B. i. 146, t. 100. Nyman, 40. Fl. Oxf. 28.

Native. Septal. Hedges, coppices, river-banks, &c. Common and widely distributed. B. March–June.

First record. Near Oxford, *Sir Jos. Banks*, 1760, in *Herb. Brit. Mus.*

Erysimum alliaria, Dr. Noehden, *Mavor's Agr. Berks*, 1809.

Sisymbrium Alliaria is found plentifully in all the bordering counties.

ERYSIMUM, Linn. Gen. Pl. n. 729 (Tournefort, Inst. t. 111).

- E. cheiranthoides**, Linn. Sp. Pl. 661 (1753). *Treacle Mustard*, *Worm-seed Mustard*.

Top. Bot. 46. Syme, E. B. i. 149, t. 102. Nyman, 42. Baxt. t. 62. Fl. Oxf. 29.

Native or colonist. Agrestal, &c. Cornfields, garden ground, waste places, &c. Locally common. A. April–October.

First record. *Camelina*, Ger. *Myagrum*, *Thlaspii effigie*, Lob. This groweth about one mile from Redding, [*How's*] *Phyt. Brit.* 19, 1650.

1. **Isis.** In an 'eight' [eyot] near Godstow, *Sir Joseph Banks* about 1770. Near Godstow Nunnery, *Baxter* in *Burt. Midl. Fl.* 1819. Wytham Mill. Faringdon.
2. **Ock.** Bagley Wood, *Druitt* in *Bart. Phaen. Bot.* n. 62. Grandpont, *Druce* in *Rep. of Bot. Exch. Club*, 1890. Denchworth, *Wail*. Near Abingdon. Shippon. Didecot. Cothill.
3. **Pang.** Pangbourn, *Newbould*. Tilehurst. Moulshford. On chalk rubble near Reading. Hampstead Norris by the railway.
4. **Kennet.** Near Reading, *Phyt. Brit.* Southcote. Theale. Sulhampstead. Burghfield. Aldermaston. Newbury. Mortimer.
5. **Loddon.** Ray Mill near Maidenhead, [*J. Woods*] *see Winch. Add. in New Bot. Guide*. Clewer, *Baxter*. Cornfields and roadsides near Eton, *Bot. Guide*. About Clewer and Eton, *Mavor's Agr. Berks.* Wargrave, *Britt. Contr.* Remenham, *Stanton*. Wokingham, *Salmon*. Sonning, *Tufnail*. Ruscombe. Loddon Bridge. Early. Maidenhead. Ascot. Sunninghill. Coleman's Moor. Wellington College Grounds. Twyford. Old Windsor. Hurst. Near Sindlesham Mill. Blackwater.

A luxuriant abnormal specimen from waste ground at Grandpont was sent by the author to the *Bot. Exch. Club* in 1890.

The record in [*How's*] *Phyt. Brit.* was almost certainly supplied by J. Watlington through Elias Ashmole. In Ashmole's copy of that work in the Bodleian Library the initials J. W. are appended. *How's* record is repeated in *Merrett's Pinax*, but a reference to *Treacle Wormseed*, *Ger.* 273 (*sic*) is added. The plate and the description in *Gerard's Herbal* point with certainty to the plant being *Erysimum cheiranthoides*, which is scattered over the county, chiefly occurring in rich soil and more frequently in low-lying localities. It varies considerably in size; in poor dry soils it may be reduced to two inches, on manure heaps it has been seen nearly three feet high.

It occurs in all the bordering counties.

****E. REPANDUM**, Hojer in *Linn. Amoen.* iii. 415 (1753).

Reichb. Ic. Fl. Germ. et Helv. ii. f. 4384. *Nyman*, 42.

Alien. Waste places. A. July-October.

2. **Ock.** On rubbishy heaps at Grandpont, and by the railway near the Gas-works. On ballast heaps and on the permanent way at Didecot. *See Report of Bot. Exch. Club* for 1892, p. 355.

A species of Eastern Europe, introduced with foreign corn or fodder.

COURINGIA, Adans. Fam. ii. 418 (1763).

****C. ORIENTALIS**, Andr. in *DC. Syst.* ii. 508 (1821). *Coddied Thorow-wax.*

Perfoliata siliquosa, *Gerard*, 430. *Brassica orientalis*, *Linn. Sp. Pl.* 666 (1753). *Conringia perfoliata*, *Link. Enum. Hort. Berol.* ii. 172 (1822). *Erysimum perfoliatum*, *Crantz, Stirp. Austr.* i. 27. *E. orientale*, *Miller, Gard. Dict.* ed. 8 (1768). *Conringia orientalis*, *Dumort. Fl. Belg.* 123. *Gorinkia orientalis*, *J. and C. Presl, Fl. Cech.* 140 (1819).

Comp. Cyb. Br. 484. Syme, E. B. i. 148, t. 101. Nyman, 42. Fl. Oxf. 29.
 Casual. Waste ground. Rare. A. July-August.
 First found in Berkshire by the uthor in 1886.

2. **Ook.** By the railway near Oxford and at Didcot. Abingdon Racecourse.

If the starting-point of generic citation date from the publication of the first edition of the *Species Plantarum* in 1753, the earliest name for this genus is *Couringia*, which was employed by Adanson in his *Familles des Plantes* in 1763. This spelling appears to be a misprint for *Conringia*, a name given to the above plant by Heister to commemorate Hermann Conring, an eminent juriscult of the previous century. If Adanson's name be disallowed, then the oldest name appears to be *Gorinkia*, which was used by Presl in 1819.

I have no records of the occurrence of *C. orientalis* in Buckinghamshire and E. Gloucestershire.

****COURINGIA AUSTRIACA.**

Conringia austriaca, Sweet, Hort. Brit. ed. 1, 25. *Erysimum austriacum*, Roth, Tent. Fl. Germ. i. 282. *Brassica austriaca*, Jacq. Fl. Austr. iii. 45, t. 283. *Gorinkia austriaca*. . . Nyman, 42.

Casual. An Eastern species found on waste ground at Grandpont. Distinguished by its darker yellow flowers and three-nerved siliques.

CAMELINA, Crantz, Stirp. Austr. i. 18 (1762).

****C. SATIVA**, Crantz, l. c. *Gold of Pleasure*.

Myagrum sativum, Linn. Sp. Pl. 641. *Myagrum*, Gerard, 213.

Comp. Cyb. Br. 481. Syme, E. B. i. 199, t. 141. Nyman, 58. Baxter, t. 447. Fl. Oxf. 34.

Casual. Cornfields, waste places, railway banks. Rare. A. July-August.
 First record. One plant by the roadside near Wokingham in 1869. Adjacent fields not examined, Mr. H. C. Watson in *Britt. Contr.* 1871. The *E. B.* t. 1254 was drawn by Mr. J. E. Sowerby from a specimen gathered near Virginia Water, but this was probably a Surrey station.

1. **Isis.** Wytham Mill.

2. **Ook.** Waste ground, Grandpont. By the railway, Didcot. Abingdon.

3. **Pang.** Shooter's Hill, *Tufnail*.

4. **Kennet.** Plentiful in waste ground about Reading, *Tufnail*. Gravel pit on the Enborne Road, *Jackson*. Newbury, by the railway.

5. **Loddon.** Wokingham, *Watson*. Near Virginia Water, *Sowerby (C. foetida)*.

Two forms or varieties have been noticed, one the *C. foetida*, Fries, Nov. Mant. iii. 70, Syme, E. B. t. 142, which has occurred at Didcot, &c.; the other the *C. sativa* of Fries, which has also been noticed at Didcot. See *Report of Bot. Exch. Club* (1892) 355.

Camelina has been found in a more or less naturalized condition in all the bordering counties.

BRASSICA, Linn. Gen. n. 734 (Tournefort, Inst. t. 106).

****B. NAPUS**, Linn. Sp. Pl. 666 (1753). *Rape or Cole Seed*, Colza.

Napus, Dodoeens, Pempt. 674 (1583). *B. campestris*, Index Kew. i. 335. *B. campestris*, var. *oleifera*, DC.

Comp. Cyb. Br. 485. Syme, E. B. i. 133, t. 88. Nyman, 46. Fl. Oxf. 31.

Alien. Sides of fields and waste places. A. or B. May-September.

First record. *B. Napus*, *Rape*, Dr. Noehden. On ditch-banks and among corn, *Mavor's Agr. Berks*, 1809.

This plant only occurs in a sporadic manner, and does not appear to be

permanent in its localities, but I have found it in many places in all the districts.

Var. *RUTABAGA* (DC. Syst. ii. 589 as a var. of *B. campestris*, Linn.). *Swede Turnip*.

Casual, only the remains of cultivation; frequently to be seen in arable fields after a crop of 'Swedes' of the preceding season. The blossoms are of a beautiful yellow colour, and the peduncles of the unopened inflorescence have to me a distinctly pleasant taste.

B. Napus occurs in all the bordering counties.

B. Rapa, Linn. Sp. Pl. 666 (1753). *Navev*.

B. campestris, Index Kewensis.

Comp. Cyb. Br. 485. Syme, E. B. i. 135, t. 90. Nyman, 46. Fl. Oxf. 31.

Native or denizen. River and brook-sides. Locally common. B. or P.

April–August.

First record. *B. campestris* abundant by the Thames, Mr. G. G. Mill in

Phyt. i. 984, 1843.

Var. *SYLVESTRIS*, H. C. Watson, Lond. Cat. ed. 7, 2 (1877).

1. *Isis*. By the side of the Cole near Coleshill and near Lechlade, and by the Thames between Faringdon and Oxford not unfrequently.

2. *Ock*. By the Ock near Abingdon, and plentifully by the Thames between Sandford and Moulsoford.

3. *Pang*. Abundantly between Moulsoford and Reading on the banks of the Thames, affording a brilliant mass of colour.

4. *Kennet*. By the Kennet near Newbury and Thatcham. Abundant by the Thames at Bisham, Cookham, &c., *Britt. Contr.*

5. *Loddon*. Near Sandford Mill on the Loddon and plentifully by the Thames from Sonning to Maidenhead.

Var. *SATIVA*, H. C. Watson, Lond. Cat. l. c., is frequently seen in arable fields as the remains of cultivation.

Var. *BRIGGSII*, H. C. Watson, Lond. Cat. l. c., and in Briggs, Fl. Plymouth, 20 (1880). This variety appears to be only an annual form which occurs in cultivated fields and waste places. In Berkshire it has been noticed about Didcot.

B. Rapa is found in all the bordering counties.

B. sinapioides, Roth. Man. ii. 957 (1830). *Black Mustard*.

B. nigra, Koch, in Roehl, Deutschl. Fl. ed. 3, iv. 713 (1833). *Sinapis nigra*, Linn. Sp. Pl. 668 (1753).

Top. Bot. 49. Syme, E. B. i. 126, t. 85. Nyman, 47. Baxt. t. 336. Fl. Oxf. 31.

Native. Viatical. Waysides, fields, river-banks, &c. Not uncommon.

A. or B. May–September.

First record. *Sinapis nigra*. Common Mustard, Dr. Noehden, in *Mavor's Agr. Berks*, 1809.

1. **Isis.** Thames bank near Oxford, *Boswell*. Lechlade. Cumnor. New Bridge. Eynsham Road. Appleton, &c.
 2. **Ock.** River-bank between Kennington and Nuneham. Near Sutton Courtney. Didcot. Ifley. Cothill. Sandford Lasher. Abingdon. Garford. Hanney, &c.
 3. **Pang.** River-side between Moulsoford and Reading.
 4. **Kennet.** North Heath, *Russell's Cat.* Near Aldermaston. Theale, &c.
 5. **Loddon.** By Thames near Bisham Wood, *Britt. Contr.* Waltham. Coleman's Moor. Maidenhead. Twyford. Old Windsor.
- B. sinapioides* occurs in all the bordering counties, and is undoubtedly a native in Berkshire.

B. Sinapistrum, Boiss. Voy. Esp. ii. 39 (1839). *Charlock*, *Wild Mustard*.
B. arvensis, *leges* (not of the Linnean *Mantissa* where the plant is *Moricandia arvensis*). *Sinapia arvensis*, Linn. Sp. Pl. 668. *Rapistrum aruorum*, Gerard, 179.

Top. Bot. 48. Syme, E. B. i. 124, t. 83. Nyman, 47. Fl. Oxf. 32.
 Native. Agrestal. Cornfields. Very common, especially in the north of the county. A. May–August.

First record. *Sinapis arvensis*. Charlock. A very troublesome weed in cornfields, but being an annual may easily be extirpated, *Mavor's Agr. Berks*, 1809. At Marlow sparingly, being replaced by [*B.*] *alba*, which abounds everywhere, Mr. G. G. Mill in *Phyt.* i. 984, 1843.

Var. *LEIOCARPA* is the more frequent plant; it has glabrous siliquas.

Var. *ORIENTALIS*, Asch. Fl. Brandb. 48, with siliquas covered with bristly hairs, has been noticed at Uffington, South Hinksey, Maidenhead, and elsewhere.

The Charlock occurs in all the bordering counties.

B. alba, Boiss. Voy. Esp. ii. 39 (1839). *White Mustard*, *Charlock*.
Sinapis alba, Linn. Sp. Pl. 668. *Sinapi album*, Ger. Em. 244.

Top. Bot. 48. Syme, E. B. i. 125, t. 84. Nyman, 47. Fl. Oxf. 32.
 Colonist. Agrestal. Cultivated fields. Very abundant on the chalk, where it replaces *B. Sinapistrum*, and is called Charlock. A. May–September.

First record. *Sinapis alba*, Dr. Noehden, in *Mavor's Agr. Berks*, 1809. Included in *Russell's Cat.* 1839. Abounds everywhere about Marlow, Mr. G. G. Mill in *Phyt.* i. 984, 1843. Kintbury [*Mr. W. Hewett, Jun.*], in *Herb. Brit. Mus.* 1841.

B. alba occurs in all the districts, but in the greater part of the Isis and in the northern and central portion of the Ock districts it only occurs in a sporadic manner. In the chalky soils of the Pang, the Kennet, and the Loddon districts, it is a very conspicuous feature in the cornfields, where it forms a more agreeable sight to the

botanist than to the farmer. It is, however, often planted as an agricultural crop. On the continent a form occasionally occurs in which the seeds are brown in colour, but I have not seen it in Britain.

Brassica alba occurs in all the bordering counties.

****B. OCHROLEUCA**, Beck, Fl. Nied. Öster. i. 485 (1892).

B. Erucastrum, Linn. var. *ochroleuca*, Gaud. Fl. Helv. iv. 381. *B. Erucastrum*, Lond. Cat. ed. 8. *Erucastrum Pollichii*, Schimp. & Spenn. in Fl. Frieb. iii. 946. *E. inodorum*, Reichb. Fl. Germ. Exc. 693, and Ic. Fl. Germ. et Helv. ii. f. 4428. Nyman, 48. Comp. Cyb. Br. 485.

Casual. Waste ground. Rare. A. June-July.

2. Ook. On waste ground at Grandpont. By the railway-side at Didcot.

[**B. OLERACEA**, Linn. Sp. Pl. 667 (1753). A maritime species recorded in error by Dr. Noehden in *Mavor's Agr. Berks*, 1809.]

****B. ELONGATA**, Ehrh. Beitr. vii. 159 (1792).

Erucastrum elongatum, Reichb. Ic. Fl. Germ. et Helv. ii. f. 4430. Nyman, 46.

Alien. Some fine specimens are naturalized on the bridge wall near Wytham Mill. I have also found it near Didcot Station.

****B. CHEIRANTHOS**, Vill. Prosp. 40 (1779).

Sinapis Cheiranthus, M. and K. Deutsch. Fl. iv. 717. Comp. Cyb. Br. 485. Reichb. Ic. Fl. Germ. et Helv. ii. f. 4432. Nyman, 47.

Alien. A casual by the railway at Didcot.

DIPLLOTAXIS, DC. Syst. ii. 628 (1821).

D. tenuifolia, DC. l. c. 632. *Wall Rocket*.

Sisymbrium tenuifolium, Linn. Amoen. Acad. iv. 279. *Brassica tenuifolia*, Baill. Hist. Pl. iii. 227.

Top. Bot. 50. Syme, E. B. i. 139, t. 93. Nyman, 49. Fl. Oxf. 32.

Native. Rupestral. Old walls. Very local. P. June-September.

First record. *Brassica Erucastrum*, Huds. Fl. Angl. 253. Windsor Castle, Dr. Lightfoot's MS. about 1770. See also Smith's Fl. Brit., Sm. Engl. Flora and Phyt. v. 368, n. s.

4. Kennet. On the walls of Reading Abbey, *Herb. Brit. Mus.*, where it is still abundant. Probably *D. muralis* of T. B. Flower in Robertson's *Env. of Reading*, 1843, refers to this plant.

5. Loddon. On the walls of Windsor Castle, *Lightfoot*. Walls of the Terrace of Windsor Castle, *Phyt. l. c.*

This plant is not recorded from Oxfordshire, Bucks, Wilts, or East Gloucestershire, while in Hampshire it appears to be limited to Southampton.

D. muralis, DC. Syst. ii. 634 (1821).

Sisymbrium murale, Linn. Sp. Pl. 658 (1753). *Brassica brevipes*, Syme, l. c., pro parte.

Top. Bot. 50. Syme, E. B. i. 140, t. 94. Nyman, 49. Fl. Oxf. 32.

Denizen. Viatical. Waste ground, rubbish heaps, but chiefly on railway ballast, on which it has now become established throughout the county. A. B. May-October.

First record. *D. muralis*, Dr. F. A. Lees in *Rep. of Bot. Rec. Club*, 1883.

1. *Isis*. Wytham.

2. *Ock*. Radley, *F. W. Bennett*. Denchworth, *Wait*. Botley. Grandpont. Didcot. Wantage Road. Cholsey. On Abingdon Race-course.

3. *Pang*. Tilehurst, *Lees*. Pangbourn. Moulsoford. Streatley. So abundant in 1896 on chalk ballast near Reading as to be noticeable by its disagreeable odour as one passes by.

4. *Kennet*. Midgham, *Jackson*. Reading, *Tufnail*. Newbury. Theale.

5. *Loddon*. Wood at Wargrave in 1871, *Melchill*. Maidenhead. Sonning. Twyford. Wellington College. Wokingham, &c.

Var. *BABINGTONII* (Syme, l. c., as a var. of the sub-sp. *D. muralis*), a biennial form with a more woody and leafy stem (see *Bab. Man. Brit. Bot.* ed. 5, 29), has been noticed by the side of the railway near Grandpont, Appleford, Moulsoford, Pangbourn, Reading, Maidenhead, &c.

D. tenuifolia and *D. muralis* appear to be good species. They can be readily distinguished by the fruit, as *D. tenuifolia* has the pod attenuated at its base, while in *D. muralis*, even in the biennial state, the pod is not so narrowed.

D. muralis occurs in all the bordering counties.

***ERUCA SATIVA*, Miller, *Gard. Dict.* ed. 8 (1768). *Reichb. Ic. Fl. Germ.* et *Helv.* iii. f. 4421. *Brassica Eruca*, Linn. *Sp. Pl.* 667 (1753).

Casual. By the railway at Didcot. Cholsey. Reading. Newbury.

BURSA [Web. ex], Wigg. *Prim. Fl. Holsat.* 47 (1780).

B. pastoris [Web. ex], Wigg. l. c., and of Gerard, 214. *Shepherd's Purse*. *Thlaspi Bursa-pastoris*, Linn. *Sp. Pl.* 647. *Capsella Bursa-pastoris*, Medik. *Pfl. Gatt.* i. 85 (1792). *C. Bursa*, H. C. Wats. *Top. Bot.*

Top. Bot. 31. Syme, *E. B.* i. 211, t. 152. *Baxt.* t. 191. *Nyman*, 66. *Fl. Oxf.* 38.

Native. Agrestal, pascual, &c. Waysides, cultivated ground, wall-tops, &c. Abundant and universally distributed. A. Mar.-Nov.

First record. *Thlaspi Bursa-pastoris*, about Oxford, *Sir Jos. Banks*, 1760, in *Herb. Brit. Mus.* *Thlaspi* (sic) *Bursa-pastoris*, *Mavor's Agr. Berks*, 1809. *Uredo Thlaspi*, Sow., is very common on this plant about Oxford, *Baxt. Phaen. Bot.* n. 191, 1837.

Var. *INTEGRIFOLIA*, Beck, *Fl. Nied. Öster.* 492, of frequent occurrence, as at Marcham.

Var. *DENSIFOLIA* (Mott. in *Midl. Nat.* Aug. 1885, under *Capsella*). On wall-tops at Hinksey, Marcham, &c. On dry soil at Maidenhead.

Var. *BRACHYCARPA* (Mott, l. c.). Garden ground, Abingdon, Pangbourn.

Var. *BIFIDA* (Crépin, Pl. Rares ou Crit. Belg. fasc. i. 11). Rich garden ground, Wytham. Streatley. Kennington.

Var. *GRACILIS*, N. E. Brown, E. B. Suppl. ed. 3, 26. South Hinksey. Cothill. Newbury. Ridgeway. Stubbing's Heath.

Var. *MACROPHYLLA* (Mott, l. c.). Rich soil in shady places. Wytham. Besilsleigh. Theale. Wargrave. Windsor.

Var. *RUBELLAEFORMIS* (Mott, l. c.). Grandpont. Hampstead Norris.

Var. *STENOCARPA-CORONOPIFOLIA* (Mott, l. c.). Near Godstow.

Var. *STENOCARPA-LYRATA* (Mott, l. c.). Wootton. Hinksey. Abingdon.

Var. *CUNEATA* (f. *cuneata*, Mott in Rep. Bot. Exch. Club, 1888). North Hinksey. Compton.

Var. *PARVULA*, Beck, l. c., is a stunted form which occurs on dry heaths, as at Bracknell and Mortimer, &c.

An intermediate form between *bifida* and *macrophylla* is also frequent in garden ground in and about Oxford.

B. pastoris is recorded for all the bordering counties.

CORONOPUS, Haller, Stirp. Helv. i. 217 (1768). (Ruppius.)

C. procumbens, Gilib. Fl. Lituan. ii. 52 (1782). *Swine's Cress*.

C. Coronopus, C. Ruellii, All. Fl. Ped. i. 256 (1789), and of Gerard, 346. *Cochlearia Coronopus*, Linn. Sp. Pl. 648. *Senebiera Coronopus*, Poir, in Lam. Enc. Méth. vii. 76 (1806).

Top. Bot. 29. Syme, E. B. i. 221, t. 160. Nyman, 65. Baxt. t. 320. Fl. Oxf. 38.

Native. Glareal and viatical. Waysides, muddy margins of ponds, or on ground from which the turf has been removed by cattle. Occasionally on the mud-covered tops of walls. A. or B. May–October.

First record. *Coronopus Ruellii* grows in all the high waies about Oxford, MS. in Lyte's *Herball*, 1660.

1. *Isis*. Near Godstow. Lechlade. Appleton. Eaton Stibble. Cumnor.
2. *Ock*. Waste ground about Blewbury, near Chance Barn, Lousley in Russell's *Cat*. Marcham, Walker. Denchworth, Wait. About Abingdon. Radley. Cumnor. Kennington. Shippon.
3. *Pang*. Near Beedon, W. M. Rogers. Tilehurst. Tidmarsh. Bradfield.
4. *Kennet*. Newbury. Aldermaston. Burghfield. Mortimer. Greenham.
5. *Loddon*. Park Place, Stanton. Crazey Hill. Knowl Hill. Sonning Meadows, Tufnail. Maidenhead. Hurst. Wargrave, Melvill. Haws Hill. Bray. Winkfield.

Although a widely distributed plant in our area it only occurs in patches, chiefly in clayey or muddy ground, so that it is absent from a considerable portion of the county. Where geese are kept it is almost sure to be found. It occurs in all the bordering counties.

[**C. DIDYMUS**, Sm. Fl. Brit. ii. 691. Syme, i. 220, t. 159. A semi-maritime species which occurs in Hampshire, and as an introduced plant in Wiltshire and in Surrey, where in Kew Gardens it is a common weed. Not yet recorded for Berkshire.]

LEPIDIUM, Linn. Gen. n. 718 (Tournefort, Inst. t. 103).

****L. RUDERALE**, Linn. Sp. Pl. 645 (1753). *Bowyer's Mustard*.

Thlaspi minus, Gerard, 204. *Nasturtium angustifolium*, Fuchs.

Top. Bot. 34. Syme, E. B. i. 214, t. 154. Nyman, 64. Fl. Oxf. 37.

Casual. Waste ground. Rare. A. July–August.

2. **Ock**. Waste ground near the Oxford Gas-works on the side of the railway, 1891.

4. **Kennet**. Near Newbury, Jackson, 1896.

It has been found as a casual in Oxfordshire and Hants, and is recorded from Surrey.

[**L. LATIFOLIUM**, Linn. Sp. Pl. 644. Syme, E. B. i. 213, t. 153. *Dittander*. Peat pits about Newbury, Mr. Bicheno in *Mavor's Agr. Berks*, 261 (1809). Almost certainly an error for some other species, as *L. latifolium* is not likely to occur so far inland.]

****L. SATIVUM**, Linn. Sp. Pl. 644 (1753). *Garden Cress*.

Comp. Cyb. Br. 481. Syme, E. B. i. 215, t. 155. Nyman, 65. Fl. Oxf. 37.

Casual. Waste places, heaps of garden refuse. Not permanent. A. April–August.

1. **Isis**. Wytham.

2. **Ock**. Waste ground at Grandpont. By the railway, Didcot. Near Abingdon.

3. **Pang**. Railway-side near Pangbourn.

4. **Kennet**. Newbury. In the trial grounds of Messrs. Sutton at Reading with the *var. lacerum*.

5. **Loddon**. Near Wellington College, *Grey in Well. Coll. List*, 1874. Twyford, in the form of the *var. crispum*, DC., Prod. i. 204. Also on rubbish heaps at Reading.

****L. VIRGINICUM**, Linn. Sp. Pl. 645 (1753).

A North American species occurred as a casual in the fields near South Hinksey in 1896, where it was noticed by my friend, Mr. J. Rose of Oxford.

L. campestre, R. Br. in Aiton, Hort. Kew. ed. 2, iv. 88 (1812). *Mithridate Pepperwort*.

Thlaspi vulgatissimum, Gerard, 204. *T. campestre*, Linn. Sp. Pl. 641.

Top. Bot. 33. Syme, E. B. i. 216, t. 156. Nyman, 65. Fl. Oxf. 37.

Native. Agrestal. Cornfields, waysides, open places in woods, widely distributed, and not uncommon. B. April–September.

First record. *Thlaspi* [*Thlapsi* sph.] *campestre*, Dr. Noehden. Sunny exposures, *Mavor's Agr. Berks*, 1809.

1. **Isis**. Carswell, Miss M. Niven. Coleshill. Buscot. Cumnor. Eaton Stibble.

2. **Ook.** Near Wootton and Childswell Farm, *Boswell*. Didecot, *Rev. F. Bennett*. Marcham, sub nom. *L. Smithii*, *Walker*. Abingdon. Near Bagley. Cothill. Wantage. Didecot. Wittenham.
3. **Pang.** Streatley, *Pamplin*. Bucklebury. Tidmarsh. Tilehurst. Reading.
4. **Kennet.** Abundant by the railway at Aldermaston and in cultivated fields there. Mortimer. Burghfield. Calcot Mill. Newbury.
5. **Loddon.** Sonning Cutting, *Tufnail in Fl. Oxf.* Bridle-path near Finchampstead. Wellington College, *Penny*. Maidenhead, by the railway abundant. Wargrave. Haine's Hill. Bracknell. Knowl Hill. Twyford. Jouldern's Ford. Haws Hill. Windsor.

The plant, which prefers sunny situations, occurs in all the bordering counties.

L. heterophyllum, Benth. Cat. Pl. Pyrenees, 95 (1826).

Var. *CANESCENS*, Gren. et Godr. Fl. Fr. i. 150 (1848). *L. hirtum*, Index Kewensis and Lond. Cat. ed. 9 (1895), not of DC. *L. Smithii*, Hook. Brit. Fl. ed. 3, 300 (1835); ? ed. 2, 297 (1830).

Top. Bot. 32. Syme, E. B. i. 217, t. 157. Nyman, 65. Fl. Oxf. 37.

Native. Glareal. Hedge-banks, commons, and roadsides. Local and rare. B. or P. July–August.

First record. *L. heterophyllum*, Sonning Cutting, Mr. F. Tufnail in *Flora of Oxfordshire*, 1886.

3. **Pang.** Bradfield, *Jenkinson* (I have not seen the specimen). Bucklebury, rare.
4. **Kennet.** Near Newtown Common, *Weaver*.
5. **Loddon.** Sonning Cutting and Burghfield Meadows, *Tufnail*, l. c. Near Sunningdale. Near Sunninghill.

Occasionally the *siliculas* have a few small papillose scales (var. *papillosa*), but the glabrous is the more frequent form.

It is not recorded from Bucks or Wilts, and although recorded from Oxfordshire has not been seen by me in that county, but is found in the other bordering counties.

The synonymy of the species is a little involved. In the *Index Kewensis* the name *Lepidium hirtum*, Sm., is made to cover three plants, which a large number of botanists have considered to be distinct species; one of these is the *Thlaspi hirtum* of Linnaeus, the second is a plant which Bentham named *L. heterophyllum*, and the third is the above species, which was formerly known as *L. Smithii*. The first plant, which Linnaeus called *Thlaspi hirtum* in the *Species Plant.*, is not found in Britain; it differs from the two latter chiefly in its fruit, which is thickly covered with rather long hairs; it also has a rather longer style, and the lobes of the *silicula* are more acute, while its radical leaves, in such specimens as I have seen, are more lyrate cut than in any forms of *L. Smithii*. The second species, *L. heterophyllum*, is much more closely allied to our British plant, from which it differs chiefly in its being nearly glabrous; in fact, Grenier and Godron, in their *Flore de*

France, consider our plant to be a variety of *L. heterophyllum* and name it *canescens*. This is the name which I have here adopted (unless indeed *L. heterophyllum*, var. *campestre*, F. Schultz, Fl. Gall. et Germ. Exs. cent. iii et iv, Intr. 30 (1840), may claim priority), because *L. hirtum*, Sm. Comp. Brit. ed. 3, 98 (1818), the name used in the last edition of the *Lond. Cat.*, is defined as having 'siliculis hirtis,' which is opposed to the description of our plant, because *L. Smithii*, Hook., Brit. Flora of 1835, is more recent than *L. heterophyllum*, Benth., l. c. of 1826, and because I do not consider the latter plant specifically distinct from the var. *canescens*, as defined by Grenier and Godron.

If it be considered, on account of the reference by Smith to the *E. B. t.* 1803 and in opposition to his own diagnosis, that our plant ought to be called *L. hirtum*, Sm., then a new name will have to be given to the *Thlaspi hirtum* of Linnaeus, and that name might be *Lepidium Candolleannum*. If the three plants in question be considered to belong to one species, the type should be *L. hirtum* (Linn.) with var. *heterophyllum* (Benth.) and var. *Smithii* (Hook.).

* *L. Draba*, Linn. Sp. Pl. 645 (1753).

Cochlearia Draba, Linn. Sp. Pl. ed. 2, 904 (1762). *Draba*, Clusius.

Syme, E. B. i. 218, t. 158. Nyman, 64. Fl. Oxf. 37.

Denizen. Waste places, railway banks, &c. Local. P. May-July.

First record. *L. Draba*, Maidenhead. The author in *Fl. Oxf.* 1886.

2. Ock. Waste ground, Grandpont (now lost). Blewbury. Very abundant at Didcot. On a rubbish heap between Wantage and Letcombe Castle. Near Uffington by the railway.

4. Kennet. Abundant by the railway between Shaw and Lambourn. Newbury.

5. Loddon. Near Windsor, *Bolton King*. Maidenhead by the railway, *Fl. Oxf.* and *Rep. of Bot. Exch. Club* for 1888. Old Windsor.

L. Draba occurs in Oxfordshire, Bucks, Surrey, and Hampshire.

THLASPI, Linn. Gen. n. 719 (Tournefort, Inst. t. 101).

T. arvense, Linn. Sp. Pl. p. 641 (1753). *Penny Cress*, *Mithridate Mustard*.

T. majus, Tabernaemont (1590). *T. Dioscoridis*, Gerard, 204.

Top. Bot. 30. Syme, E. B. i. 202, t. 144. Nyman, 61. Fl. Oxf. 35.

Colonist. Agræstal. Cultivated and waste ground. Not uncommon.

A. April-October.

First record. *Thlaspi*, one kind grows on Botley Hills, *MS. in Lyte's Herbal*, 1660. *Thlaspi arvense*, Treacle Mustard, Dr. Noehden, *Mavor's Agr. Berks*, 1809.

1. *Isis*. Pusey. Near Cumnor and Dean Court, *Boswell*. Wytham. Buckland. Appleton.

2. Ock. Marcham, *Walker*. Harwell, *Lomax*. Between Abingdon and Wootton, *Boswell*. South Hinksey, *Sister Jane Frances*. Ifley Lock, *Armstrong*. Wantage. Frilford. Steventon. Cot-hill. Didcot. Sandford. Hagborne. Grove. Charney Basset. Shippon. Near Wittenham.

3. Pang. Bradfield, *Jenkinson*. Tidmarsh. Bucklebury. Frilsham. Pangbourn. Basildon. Purley. Tilehurst.
4. Kennet. High cornfields near Shaw, *Russell's Cat*. Aldermaston, *Boswell*. Mortimer. Beenham. Ufton. Theale. Padworth. Newbury. Burghfield. Silchester. Common on railway banks between Midgham and Newbury.
5. Loddon. Common fields opposite Bisham woods, abundantly, *Mill*. Bisham and Wargrave, *Melvill*. Wellington Coll. List. Between Wokingham and Sandford Mill, *Salmon*. Wargrave. Hurst, *Melvill*. Maidenhead. Twyford. Early. Waltham. Bray.

The plant, although often absent from considerable areas, is widely distributed, and reaches its maximum of frequency in gravelly or clayey cornfields; in such localities it is found in all the bordering counties.

****T. PERFOLIATUM**, Linn. Sp. Pl. 641 (1753).

Top. Bot. 31. Syme, E. B. i. 203, t. 145. Nyman, 62. Baxt. t. 240. Fl. Oxf. 36. Casual? Grassy bank by railway. Very local. A. March-April.

Mr. T. B. Flower includes it in *Robertson's Env. of Reading*, 1843, but the entry is probably an error, for as *T. arvense* is not mentioned in the list, we may assume that this was the species observed.

2. Ock. A few plants have been noticed on Cumnor Hill, but these owe their origin to some seed which was scattered there by Messrs. Boswell and Holliday in the year 1861. By the side of the railway near Denchworth, *Rev. W. O. Wait*, 1896.

It occurs in considerable quantity over a limited area on the railway side, which is here composed of gravel brought from the neighbourhood. The plant is not quite identical with the form which occurs on the Oxfordshire quarries, being taller, more erect and less branching in growth; it resembles specimens which I have seen from Sweden, collected by Ahlberg. Possibly it originates from seeds introduced by passing trains, but where it occurs there is no siding where freight trains could be shunted, and notwithstanding the numerous foreign casuals which I have noticed at Didcot, I have never seen *Thlaspi* there. The geological character of the country about Denchworth is Gault, a formation on which one would not expect *Thlaspi* to be native.

This very local plant occurs over a very limited area of Oxfordshire, Wiltshire, and Gloucestershire, the only counties in which it is wild in Britain.

IBERIS, Linn. Gen. Pl. n. 721 (Dill. Gen. 6).

I. amara, Linn. Sp. Pl. 649 (1753). *Candy-tuft*.

Top. Bot. 32. Syme, E. B. i. 207, t. 149. Baxt. t. 351. Nyman, 61. Fl. Oxf. 34.

Colonist. Agrestal. Chalky fields. Locally common. A. May-Sept. First record. In arvis circa Henley et alibi comit. Oxon., *Hudson*, Fl. Angl. 285, 1778. More definitely recorded as a Berkshire plant in E. B. t. 52, where it is said to have been brought from the fields about Wallingford by *Dr. Smith* in 1791.

2. Ock. About Wallingford plentifully and undoubtedly wild, *Smith*, Fl. Brit. 1800, and sp. dated 1791 in *Herb. Linn. Soc.* See

also *Bot. Guide*, 1805. Very plentifully . . . near Blewbury, *Lousley in Russell's Cat.* Cholsey, *Henslow in Herb. Brit. Mus.* Didcot. Lowbury.

3. **Pang.** Compton Downs, *Winch.* Between Pangbourn and Streatley, *Pamplin in Baxt.*, *Phaen. Bot.* Ilsley. Lowbury, *Hewett's Hist.* Basildon. Unwell Downs. Moultsford. Chalk ballast between Tilehurst and Reading.

4. **Kennet.** Chalk ballast near Reading.

5. **Loddon.** Near Henley, *Hudson.* Chalky ground near Hurley, *Gotobed.* Common . . . about Marlow, *Mill.* Chalk pit between Henley and Wargrave, *Melwill.* Frequent near Park Place, *Stanton.* Fields near Culham almost white with its blossoms.

Var. **RUFICAULIS** (Lej.) DC., *Syst.* ii. 399 (1821), differing in its smaller size and purplish flowers, occurs occasionally with the type, as at Lowbury, Basildon, Hurley; and Mr. Tufnail tells me it was quite a feature at the back of Streatley woods this summer.

Iberis amara, which in Berkshire is almost confined to the area of chalky arable fields, occurs in all the bordering counties except E. Gloucestershire.

****I. UMBELLATA**, Linn. *Sp. Pl.* 649 (1753). *Garden Candy-tuft.*

Nyman, 60. Reichb. *Ic. Fl. Germ. et Helv.* ii. f. 4194.

Casual. Railway banks near Reading, near Pangbourn, and Twyford, and Wellington Coll.

TEESDALIA, R. Br. in Aiton, *Hort. Kew.*, ed. 2, iv. 83 (1812).

T. nudicaulis, R. Br. l. c. *Shepherd's Cress.*

Iberis nudicaulis, Linn. *Sp. Pl.* 650. *Teesdalia Iberis*, DC., *Syst.* ii. 392 (1821).

Top. Bot. 31. Syme, *E. B.* i. 209, t. 150. *Baxt.* t. 423. Nyman, 63. *Fl. Oxf.* 36.

Native. Glareal, ericetal. Bare spots on heaths, and pastures, &c., on gravelly soil. Local and rather rare. A. May–August.

First record. *Bursa pastoris minor*, Park. The lesser Shepherd's Purse. In the corne near the hedge on the South side of the Greate pond at Coleman's Moor, *MS. in a copy of Ray's Catalogus about 1680*; see *Phyt.* O. S. iv. (1852) 745.

2. **Ook.** Pond bank near Tubney, *Newton Young in Walk. Fl.* 184 (1833). Near Great Oakley, *Walker.* Chawley Hurst, *Robertson.* Boar's Hill, *Mr. F. A. Rogers.*

5. **Loddon.** Near Coleman's Moor (*see above*). Field near Ambarrow. Lane by Longdown Lodge, Brickfield. New road to Wokingham, *Penny.* Abundant on a Common near Bracknell. Between Bracknell and Wokingham, near the railway. By the Lodge near Wellington College Station.

Teesdalia is recorded for all the bordering counties except Gloucestershire.

****ISATIS TINCTORIA**, Linn. Sp. Pl. 670 (1753). *Wood*.

Syme, E. B. i. 222, t. 161. Nyman, 67. Baxt. t. 210. Fl. Oxf. 38.

Casual. Waste and cultivated ground. Very rare. B. or P.

2. **Ock**. Wantage, 1866, *Trimen in Britt. Contr.* 1871.

4. **Kennet**. On Sutton's Farm at Reading, *Tv/mail*.

The Wantage specimen was probably the remains of ancient cultivation, for we read in *Mavor's Agr. Berks*, 1809, that 'it was formerly grown about Wantage, but though found very productive it seems is discontinued.'

****VOGELIA SAGITTATA**, Medik. Pfl. Gatt. 32 (April, 1792).

Myagrum paniculatum, Linn. Sp. Pl. 641 (1753). *Neslia paniculata*, Desv.

Journ. de Bot. iii. (1814) 162. *V. paniculata*, leges. Reichb. Ic. Fl. Germ. et Helv. ii. f. 4291. Nyman, 68.

Casual. Waste places. Very rare. A. June–August. By the railway near Oxford and at Didcot.

BUNIAS, Linn. Gen. 737 (Tournefort, Inst. t. 103).

****B. ERUCAGO**, Linn. Sp. Pl. 670 (1753).

Erucago campestris, Desv. l. c. 168. Reichb. Ic. Fl. Germ. et Helv. ii. f. 4159. Nyman, 67.

Casual. By the railway at Didcot.

****B. ORIENTALIS**, Linn. Sp. Pl. 670 (1753).

Laelia orientalis, Desv. l. c. Reichb. Ic. l. c. ii. f. 4162. Nyman, 67.

Alien. By the sides of roads and railways. Rare. B. May–July.

1. **Isis**. Near Lechlade.

2. **Ock**. Didcot, and by the railway between Didcot and Cholsey.

4. **Kennet**. West Ilsley. Newbury.

5. **Loddon**. Maidenhead. Wargrave. Knowl Hill.

****ENARTHROCARPUS LYRATUS**, DC., Syst. ii. 661 (1821).

Casual. A species of Eastern Europe recorded in the Comp. Cyb. Br. 485, 1870, as having been found at Windsor. The casual plants chiefly occur on the Buckinghamshire side of the Thames at Windsor.

RAPHANUS, Linn. Gen. n. 736 (Tournefort, Inst. t. 114).

B. Raphanistrum, Linn. Sp. Pl. 669 (1753). *Wild Radish*, *Jointed Charlock*.

Raphanus sylvestris, Gerard, 185. *Raphanistrum innocuum*, Medik. in Ust. Ann. Bot. viii. (1794) 39.

Top. Bot. 51. Syme, E. B. i. 120, t. 81. Nyman, 29. Baxt. t. 359. Fl. Oxf. 22.

Colonist. Agrestal. Cornfields. Common on light sandy soil. A. May–September.

First record. About Oxford, *Sir Joseph Banks*, about 1760, in *Herb. Brit. Mus.* *R. raphanistrum*, Dr. Noehden, *Mavor's Agr. Berks*, 1809.

Var. **PALLIDA**, the pale-flowered form with the petals white, or marked with lilac, is the more frequent plant.

Var. **FLAVUM**, *Raphanistrum vulgare*, var. *flavum*, Gray's Nat. Arr. ii. 687, which differs in the flowers being uniformly yellow, has been noticed by me at Tubney, Boar's Hill, Padworth, Theale, Jouldern's Ford, Enborne, Bucklebury, Mortimer, and elsewhere.

The plant occurs in all the bordering counties.

****R. SATIVUS**, Linn. Sp. Pl. 669 (1753). *Garden Radish*.

Occurs only as a garden outcast on rubbish heaps at Grandpont, Marcham, Fyfield, Abingdon, Newbury, Aston Ferry, Maidenhead, Twyford, &c.

RESEDACEAE, DC., Théor. Élém. 214 (1813).

RESEDA, Linn. Gen. n. 535 (Tournefort, Inst. t. 238).

****R. ALBA**, Linn. Sp. Pl. 449 (1753).

R. suffruticulosa, Linn. Sp. Pl. ed. 2, 645. Syme, E. B. ii. 3, t. 163.

Casual. Near the Station at Didcot, with other foreign plants.

****R. ODORATA**, Linn. Syst. ed. 10, 1046 (1759). *Sweet Mignonette*.

Casual. Rubbish heaps, &c. Only as a garden outcast at Southcote. Grandpont. Didcot. Abingdon Racecourse, &c.

R. lutea, Linn. Sp. Pl. 449 (1753). *Base Rocket, Wild Mignonette*.

R. vulgaris, C. B. Pin. 100 (1623).

Top. Bot. 52. Syme, E. B. ii. 2, t. 162. Baxt. t. 15. Nyman, 69. Fl. Oxf. 38.

Native. Glareal. Fields and waysides on sandy or calcareous soil.

Practically absent from clay soils. Locally common. P. May-Oct.

First record. About Oxford, *Sir Joseph Banks*, in *Herb. Brit. Mus.* 1760. Published as *R. lutea*. Dr. Noehden, *Mavor's Agr. Berks*, 1809.

1. **Isis**. Carswell, *Miss M. Niven*. Near Pusey. Idstone.

2. **Ock**. Childswell Hills, *Thurland*. Cumnor Hill, *Whitwell*. Tubney, *Walker*. On the roads and banks about Blewbury and Upton, *Lousley in Russell's Cat*. Kingston. Lisle, *Bellamy*. Culham. Kingston Bagpuze. Frilford. Cothill. Dry Sandford. Letcombe Shippon. Near Uffington. Wantage. Letcombe Basset. Lowbury. Besilsleigh. Radley.

3. **Pang**. Streatley, *Pamplin*. Near Unwell Wood, *Boswell*. About Hampstead Norris, *Lousley*, l. c. Near Bucklebury, *Bunny in Russell's Cat*. Frequent near Beedon, *W. M. Rogers*. Compton. Ashampstead. Basildon. Bottom Farm. Bradfield. East Ilsley. Moulsoford. Pangbourn. Purley. Ashridge. Ridge-way. Tilehurst.

4. **Kennet**. Frequent near Beedon, *W. M. Rogers*. Mortimer, *Tufnail*. About Reading, *Burt in Baxt. Phaen. Bot.* Newbury.

Hampstead Marshall. Lower Bucklebury. Near Farnborough. Hodcott. West Ilsley. Wickham. Lambourn. Fields near White Horse Hill. Midgham.

5. Loddon. About Henley, Stanton. Windsor Home Park, Bolton King. Sonning Cutting. Hurley. Near Maidenhead. Wargrave. Near Cookham. Twyford.

Roseda lutea occurs in all the bordering counties.

R. Luteola, Linn. Sp. Pl. 448 (1753). *Dyer's Rocket*, *Dyer's Weed*, *Weld*. *Luteola*, Gerard, 398.

Top. Bot. 51. Syme, E. B. ii. 4, t. 164. Nyman, 69. Fl. Oxf. 39.

Native. Viatical. Waysides, quarries, fields, walls, &c. Common and widely distributed, especially on stiff and clayey soil, to which, however, it is not limited. B. May–September.

First record. *Dier's Weed* everywhare about Oxford, MS. in *Lyte's Herbal*, 1660. *R. luteola*, Dr. Noehden. Affords a beautiful dye, *Mavor's Agr. Berks*, 1809.

1. Isis. Cumnor, *Boswell*. Carswell, *Miss M. Niven*. Wytham. Buseot. Faringdon. Strattonborough Castle. Shrivenham, &c.
 2. Ock. Blewbury, *Lousley in Russell's Cat*. Marcham, *Walker*. Hanney, *Wait*. Tubney. Didcot. Radley. Wantage. Uffington. Wallingford. Shippon. Wittenham Clumps. Cumnor Hurst. Garford. Letcombe Basset.
 3. Pang. On the borders of Beech Wood . . . by the roadsides at Hampstead Norris, *Lousley*, l. c. Moulsoford. Streatley. Pangbourn. Tilehurst. Bradfield. Bucklebury. Compton. Yat-tendon. Abundant on the railway between Streatley and Reading.
 4. Kennet. Padworth. Theale. Newbury. Lambourn. Hungerford. Kintbury. Wickham. Midgham. Beenham, &c.
 5. Loddon. Chalk pit, Medmenham, &c., *Mill*. Wellington Coll., *Penny*. Abundant in Sonning Cutting. Maidenhead. Twyford. Frogmore. Windsor. Bray. Cookham. Finchampstead, &c.
- R. Luteola* occurs in all the bordering counties.

CISTACEAE, Lindl. Nat. Syst. ed. 2, 91 (1836). *Cistineae*, DC., Théor. Élém. 244 (1814).

HELIANTHEMUM, Adans. Fam. ii. 443 (1763), (Tourn., Inst. t. 128).

H. Chamaecistus, Miller, Gard. Dict. ed. 8 (1768). *Dwarf Cistus*, *Rock Rose*. *H. vulgare*, Gaertn. Fruct. i. 371, t. 76 (1788). *H. Cordi*, Lobel (1576). *H. Helianthemum*. *Cistus Helianthemum*, Linn. Sp. Pl. 528 (1753).

Top. Bot. 52. Syme, E. B. ii. 10, t. 168. Nyman, 74. Baxter, t. 393. Fl. Oxf. 39.

Native. Pascual. Dry hilly pastures, roadsides, chalk downs, &c. Locally common. P. April–September.

First record. *Cistus helianthemum*, Dr. Noehden, *Mavor's Agr. Berks*, 1609.

1. **Isis.** Wytham Hill. Ashbury. Idstone. A small-flowered form is found with the type at Wytham. Near Faringdon. Near Buscot.
2. **Ock.** Cumnor, *Boswell*. Very common on all the dry banks about Blewbury, *Lousley in Russell's Cat.* Tubney, *Walker*. S. Hinksey, *Lawson in Herb. Oxf.* Besilsleigh. Cumnor Hill. King Standing Hill. Lockinge. Letcombe. Cothill. Blewburton Camp. White Horse Hill. Wittenham Clumps. British Village near Faringdon. Valley above the 'Rifle Range' on Boar's Hill. Cherbury Camp, &c.
3. **Pang.** Compton and Hampstead Norris, *Lousley*, l. c. Streatley, *Pamplin*. Abundant on the chalk downs of Streatley, Basildon, Pangbourn, Mouldsford, Compton, Ilsley, &c. Grass slopes under Sulham woods. Near Bottom Stead Farm. Bradfield. Very luxuriant under Ashridge Wood. By Unwell Wood. Lowbury Hill. Englefield, &c.
4. **Kennet.** On Gibbet Hill and Walbury Camp. Lambourn Downs. Near the Ridgeway. Letcombe Downs. Near Newbury. Inkpen. West Ilsley.
5. **Loddon.** On the chalk abundant about Marlow, *Mill*. Frequent about Park Place, *Stanton*. Hurley. Quarry Wood. Wargrave. Culham. Bisham, &c.

When the leaves are green underneath it is the *H. vulgare*, var. *concolor*, Reichb. Fl. Germ. Exc. ii. 714.

The Rock rose, although a common plant on the Coralline, Oolite, and Chalk soils, is almost wholly absent from the clays and peaty sands. It delights in sunny pastures or grassy downs, and is found with *Anthyllis*, *Poterium Sanguisorba*, *Bromus erectus*, *Festuca ovina*, and *Scabiosa Columbaria*.

H. Chamacistus occurs in all the bordering counties.

VIOLACEAE, DC., Fl. Fr. iv. 801 (1805). Lindl. Syn. 35 (1829).

VIOLA, Linn. Gen. 898 (Tournefort, Inst. t. 236).

V. palustris, Linn. Sp. Pl. 934 (1753). Marsh Violet.

Top. Bot. 53. Syme, E. B. ii. 13, t. 170. Nyman, 79. Fl. Oxf. 43.

Native. Uliginous. Marshes, bogs, alder swamps, wet portions of

heaths, preferring peaty soil. Locally common, but very rare in the northern part of the county. P. April-June.

First record. *Viola palustris rotundifolia*. It grows... most plentifully at Chilswell in Berkshire amongst the moistest Bogs, *Plot, Nat. Hist. Oxfordshire*, 144-5, 1677. Detecta fuit a Jacobo Bobert decennio abhinc, *Morison, Hist. Ox.* 475, 1680.

2. Ock. Childswell Hills, *Plot, l. c.* A specimen from Plot's locality, where it still exists, was gathered by Dillenius in 1744, and is preserved in his herbarium at Oxford. Wootton Heath, *Baxter in Walk. Fl.* (Still there up to 1895.) Birch Copse, *Thurland*. Hen Wood.
4. Kennet. Cookham [Crookham] Common, *London Fl.* Mortimer. Burghfield Common, *Tufnail*. Bog on Snelsmore Common, *Russell's Cat.* 1839. Plentiful in Ufton woods. Abundant in Aldermaston woods and Soak. Greenham Common. Burghfield Heath. Bucklebury Common. Padworth.
5. Loddon. Near lake in Wellington College grounds. Grebe pond. Broadmoor. Ambarrow, *Penny*. Between Wokingham and Wellington College, *Crawley*. Sunninghill. Bog to the north of Wellington College Station. Near Long Moor. Finchampstead. Pond near Sandhurst College.

It will be seen that in the north of the county this species is confined to a very small area on the Boar's Hill range in the Ock drainage. It is probably absent from the Isis district, and unless it be found about Fence Wood and Bucklebury is probably absent from the Pang district. Its headquarters are the peaty country on the south of the Kennet, where in some places it is an abundant plant, and on the Bagshot Sands in the Loddon district, where it is not uncommon.

Viola palustris is reported for the bordering counties of Surrey, Hants, Wilts, and Oxfordshire, but it is perhaps extinct in the latter county.

V. odorata, Linn. Sp. Pl. 934 (1753). Sweet Violet.

V. nig. a sive purpurea, Ger. Em. 850.

Top. Bot. 54. Syme, E. B. ii. 14, t. 171. Nyman, 78. Fl. Ox. 41.

Native. Septal. Hedgerows, wood-borders, open coppices, &c. Rather common, but more frequent in the north and east of the county.

P. March-May, and sometimes in the autumn.

First record. *Viola odorata*. Common or Sweet Violet, *Mavor's Agr. Berks*, 1809.

1. Isis. Near Cumnor a large lilac-coloured variety, *Boswell*. Wytham. Appleton. Longworth. Faringdon. Buscot. Coleshill. Buckland. Pusey. Bourton, &c.
2. Ock. Tubney, *Walker*. Denchworth and *f. alba*, *Wait*. Hinksey.

- Bagley. Kennington. Radley. Wootton. Cothill. Marcham. Steventon. Lockinge. Wittenham. Wantage. Near Uffington.
3. Pang. Streatley with var. *alba*, Pamplin. Common about Beedon, *W. M. Rogers*. Hampstead Norris. Basildon. Pangbourn. Bradfield. Ashampstead.
 4. Kennet. Newbury, *Russell's Cat.* 1839. Common about Beedon, *W. M. Rogers*. Wickham, *Mrs. Batson*. Near Snelsmore. Shefford. Hungerford. Newbury. Theale. Aldermaston. Kintbury.
 5. Loddon. Ridges, *Penny*. Frequent about Park Place. Varying in colour from pale lilac to deep claret, *Stanton*. Near Wargrave. Near Cookham. Shottesbrooke. Windsor Park. Frogmore. Early. Farley. Maidenhead.

The Violet varies in colour; blue, purple (*V. subcarnea*, Jord. Pugill, Pl. Nov. p. 21), lilac, and pure white specimens are found which retain their colour in cultivation.

The above localities are only a selection from a large number, as *Viola odorata* is widely distributed and undisputably native.

Var. *IMBERBIS* (Leighton, in Loud. Mag. Nat. Hist. viii. 277, as a species), Hensl. Cat. Brit. Pl. ed. 2, is a slight variety, proving constant in cultivation, in which the little tuft of hairs on the lateral petals is absent. Leighton found this variation in the white-flowered form only, but I have met with the blue-flowered plant at Pangbourn; the white-flowered form which is not unfrequent occurs at Cumnor, Bagley, Streatley, Hampstead Norris, Wargrave, &c.

V. odorata × *hirta*, *V. permixta*, Jord. Obs. Pl. Crit. vii. 6 (1849). The above hybrid is variable and sometimes approaches one parent and sometimes the other. It has been noticed near Denchworth by Rev. W. O. Wait, and it occurs at Cumnor, Wytham, Bagley Wood, Streatley, Basildon, &c. In one instance near Wytham the flowers had a large white eye, the white variety of *V. odorata* with which it was growing being doubtless one of the parents. The hybrid had much of the aspect of *V. scotophylla*, Jord. l. c. 9.

A curious form of *V. odorata*, with lilac flowers and very narrow lateral petals, was found by Mr. Tufnail in Sonning Lane.

V. odorata is found in all the bordering counties.

V. hirta, Linn. Sp. Pl. 934 (1753). *Hairy Violet*.

Top. Bot. 55. Syme, E. B. ii. 17, t. 172. Nyman, 78. Fl. Oxf. 42.

Native. Septal. Hedge-banks, wood-borders, grassy places, chalk downs, open woods. Locally abundant. P. February–May. Also in September in Wytham woods.

First record. *Viola martia major hirsuta inodora*, nobis. Copiose provenit in montosis silvis circa Oxonium . . . detecta fuit a Jacobo Bobert

decennio abhinc, *Morison, Hist. Ox.* ii. 475, 1680. Plot mentions the plant, but not from a Berkshire locality.

1. **Isis.** Cumnor, *Dyer*. Wytham woods. Coppice near Cumnor. Near the Blind Pinnocks.
2. **Ook.** Bagley Wood. Between South Hinksey and Childswell Farm, *Baxter, in Walk. Fl.* Besilsleigh. Tubney. Near Cherbury Camp. Cothill. Wittenham Clumps. Uffington. Kingston Lisle. Lockinge. Blewbury. Upton. Denchworth, &c.
3. **Pang.** In Basildon Wood, *E. Forster, in Bot. Guide*, 1805. Streatley, *W. Newbould*. Park Coppice and other woods about Hampstead Norris, *Lousley*. Common about Beedon, *W. M. Rogers*. Compton. Very abundant about Yattendon, Aldworth, Ashampstead, Pangbourn, Sulham, &c. Bradfield. Lowbury. Unwell Wood, &c.
4. **Kennet.** Bagnor, Bicheno, in *Mavor's Agr. Berks*, 1809. Common about Beedon, *W. M. Rogers*. Wickham, *Mrs. Batson*. Lambourn. Farnborough. Shefford. Near Hungerford. Walbury Camp. Gibbet Hill. Englefield.
5. **Loddon.** Wargrave, *Britt. Contr.* Common about Park Place, Stanton. Hurley. Culham. Quarry woods. Cookham. Ashley Hill. Stubbing's Heath. Slopes of Windsor Castle. Near the Grotto, Frogmore.

Viola hirta has a wide distribution in Berkshire, but it is especially abundant on the Oolite and Chalk. On the latter formation it occurs in the greatest profusion. A grassy bank under the shelter of a beech wood when covered with this plant is a lovely sight in spring-time, as it is one of the freest flowering species in the genus. The colour of the flowers varies considerably. Usually they are of a more purplish blue than the flowers of *V. Riviniana*, but they are also found of a slaty blue, very rarely of a reddish-purple tint (*f. rosea*), and sometimes of a pure white (*f. alba*), as at Wytham and Hampstead Norris. The flowers also show great variation in size. The petals are sometimes broader than is usually the case; the apex of the petals is sometimes rounded, sometimes notched. The leaves also vary considerably in size and in the degree of hairiness. In the *Icones Florae Germanicae et Helveticae*, iii. tt. 3, 4, 5, 6, and 7, Reichenbach has figured several forms. Of these var. **PARVULA** (Opiz), *Reichb. l. c.* p. 4 (1838), with large flowers and small leaves, has been seen in Wytham and Bagley woods, at Hampstead Norris, &c. Var. **GRANDIFOLIA**, with larger leaves and rather narrower petals, has occurred in Wytham Wood and Hampstead Norris woods. A plant with much smaller flowers and leaves and very narrow petals has been gathered near Basildon and at Wytham; it is probably the var. **CALCAREA**, *Bab. Man. Brit. Bot.* 35 (1847). Var. **HIRSUTA**, *Schult.*, a not unusual form, has the notched petals of var. *parvula* (Opiz).

The hybrids of this species and *V. odorata* have already been alluded

to. Near Basildon I gathered a hybrid of the two species which was much nearer to *V. hirta*, but the flowers were slightly odorous.

V. hirta occurs in all the bordering counties.

V. silvestris, Lam. Fl. Fr. ii. 680 (1778), teste Indice Kewensi, Reichb. Fl. Germ. Exc. 707 (1830-2).

V. Reichenbachiana, Jordan, ap. Boreau, Fl. Centre Fr. ed. 3, ii. 78 (1857). Top. Bot. 56. Syme, E. B. ii. 20, t. 174. Nyman, 77. Fl. Oxf. 40.

Native. Sylvestral. Woods, thickets, and shady hedge-banks. Local. P. April-May.

First record. *Viola Reichenbachiana* by Messrs. Boswell, Reeks, and Britten, in *Britt. Contr.* 1871.

1. **Isis**. Appleton. Wytham. Copse near Cumnor.

2. **Ock**. Bagley, *Boswell*. Tubney. Sunningwell. Uffington.

3. **Pang**. Sulham Wood, *Tufnail*. Frilsham. Streatley. Hampstead Norris. Hermitage. Basildon. Standford Dingley.

4. **Kennet**. Elcot, *Reeks*, in *Britt. Contr.* Farnborough. Curridge. Snelsmore. Plentiful in Irish Wood. Kintbury. Hampstead Marshall woods. Enborne.

5. **Loddon**. Bisham Wood, *Britten*. Windsor Park, rare, *Bolton King*. Bracknell.

Near Cumnor, in Bagley, and at Basildon. Plants have been noticed which are probably hybrids of this species with *V. Riviniana*. If not, they are intermediate in character. They have the blue spur of *V. silvestris*, but it is much more deeply channelled, and the flowers are larger.

The leaves of this species are often of a dark purple tint, especially on the under surface (*f. cuprea*). The flowers are sometimes of a very pale colour.

Viola silvestris is much scarcer and usually prefers more shady localities than *V. Riviniana*, but it is widely distributed in Berkshire, and has been reported from all the bordering counties.

V. Riviniana, Reichb., Ic. Pl. Crit. i. 81 (1823). *Dog Violet*.

V. canina, Curt. Fl. Lond. i. 182. *V. sylvatica*, Fries. Herb. Norm. Suec. 1817.

Top. Bot. 56. Syme, E. B. ii. 19, t. 173. Nyman, 77. Fl. Oxf. 40.

Native. Sylvestral, septal. Woods, hedges, heathy places, &c. Common and generally distributed, except on the grassy chalk downs or in country under corn crops. P. April-June. Also in September.

First record. *V. canina*, *Mavor's Agr. Berks*, 1809. First precise record, *V. canina*, var. *a. sylvatica*, Streatley, W. Pamplin, in *Phyt.* v. p. 154, 1854.

It was probably on this species that Baxter saw *Puccinium violarum* and *Aecidium violae* in Bagley Wood about 1830.

V. Riviniana exhibits considerable variation in the size of its flowers and in the shape of its petals. The spur, which is normally pale, is sometimes found of varying shades of blue. The furrow in the spur also varies in distinctness, but I have not found great difficulty in separating *V. silvestris* from it. The hybrid of the two species, which was found in company with both of the assumed parents near Basil-don, was a very free-flowering plant.

V. Riviniana is sometimes found with more or less pubescence on the petioles, peduncles, and leaves (var. *VILLOSA*, Neum. Wahlst. and Murb.), but it scarcely seems worthy of varietal rank. A very large-flowered plant with a darker-coloured spur, which blossoms later in the season, appears to be the var. *NEMOROSA* of the same authors. The much longer petals give it a quite different appearance from the normal round-flowered *V. Riviniana*. It is usually a little more purple in tint. I have seen it at Uffington on the Upper Greensand and in other localities. The leaves of this species are sometimes dark purplish-brown (*f. cuprea*). This form occurs more frequently on sunny heathy spots.

Var. *FLAVICORNIS* (Forster, E. B. Suppl. t. 2736 as a species) is a dwarf form, found on dry heaths, which has been seen at Wytham, Bagley, Windsor, &c.

V. Riviniana is found in all the bordering counties.

V. canina, Linn. Sp. Pl. 935 (1753). *Dog Violet*.

V. flavicornis, Sm. Eng. Fl. i. 304. *V. ericetorum*, Lond. Cat. ed. 9, not of Schrad., according to Index Kewensis.

Top. Bot. 56. Syme, E. B. ii. 21, t. 175. Nyman, 77. Fl. Oxf. 40-1.

Native. Ericetal. Sandy heathy ground. Local. P. April-June.

First record. *V. canina*, Dr. Noehden, *Mavor's Agr. Berks*, 1809. This record included, if it did not refer only to, *V. Riviniana*. The first precise record is *V. flavicornis*, Bagley Wood, Mr. H. Boswell in *Phyt. N. S.* iv. 101, 1860.

1. **Isis.** Buckland. Pusey, *Boswell*. Thames meadows under Wytham woods, an unexpected locality. Wytham Wood.
2. **Ock.** Bagley Wood. Wootton, *Boswell*. Frilford Heath, *Walker, Journ. Bot.* (1873), 138. Besilsleigh.
3. **Fang.** Cold Ash Common. Bucklebury Common. Oare Common.
4. **Kennet.** Burghfield. Mortimer. Top of Gibbet Hill, 950 feet. Hampstead Marshall. Aldermaston. Snelsmore. Greenham and Crookham Commons. Wickham Heath. Near Silchester. Upton. Padworth.
5. **Loddon.** Heaths between Ascot and Bagshot, *Watson*. Park Place, *Stanton*. Windsor Great Park. Bracknell. Ascot. Near Loddon Bridge. Stubbing's Heath. Near Wellington College

Station. Finchampstead. Near Wokingham. Bearwood. Cookham Dene. Sandhurst. Swinley.

Although local in the north and east of the county, this species is frequent in the Kennet and Loddon districts. It appears to be eminently an arenaceous species, and consequently avoids the Oxford and Kimmeridge Clay and the Gault formations. In the Wytham meadows it occurred on a stratum of gravel.

With the exception of East Gloucestershire it is recorded from all the bordering counties.

V. lactea, Sm. in E. B. n. 445 (1797). *Cream-coloured Violet.*

Top. Bot. 57. Syme, E. B. ii. 22, t. 176. Nyman, 77. Fl. Oxf. 41.

Native. Ericetal. Heaths. Local. P. April-June.

First record. From a disused brickfield on a heath-covered waste, by the left side of the road from Bagshot to Ascot Station, just within the county of Berks, Mr. H. C. Watson in *Report of Bot. Exch. Club*, 10, 1869.

4. Kennet. Burghfield Common, *Tufnail*. Inkpen Common. Mortimer Common. Aldermaston. Near the 'Round Oak.'

5. Loddon. Between Bagshot and Ascot, *Watson*. In one or two places on Bagshot Heath. Near Loddon Bridge.

V. LACTEA \times **CANINA** = *V. lactea* var. *intermedia*, Watson, Rep. Bot. Exch. Club, 10 (1876). This hybrid occurred near Loddon Bridge and on Mortimer West Common.

Viola lactea is usually found on the clayey portion, but also grows on quite dry parts, of our heathland, and is a very local species in Berkshire, being confined to the London Clay, Reading Beds, and Bagshot Sands; it is not recorded for Wiltshire or East Gloucestershire, and is one of the rarest species in Oxfordshire, if indeed it still survives in its solitary locality, which is on an outlier of the London Clay.

[**V. PERSICIFOLIA**, Roth, Tent. Fl. Germ. ii. 271 (1789).

V. stagnina, Kit. in Schult. Oest. Fl. 426. Syme, E. B. ii. 22, t. 177. Nyman, 77.

The specimen in Herb. Oxf. gathered on Otnoor in 1820, named by Mr. Baxter *V. lactea*, and recorded in my *Oxfordshire Flora*, I find belongs to this species, but so far I have been unable to discover other plants.

Hampshire is the only one of the bordering counties for which it is recorded.]

V. tricolor, Linn. Sp. Pl. 935 (1753) (Dodoens, 1583). *Heartsease, Wild Pansy.*

Top. Bot. 57. Syme, E. B. ii. 25, t. 178. Nyman, 80. Fl. Oxf. 43.

Native. Agrestal. Cultivated ground. A. or B. Common. January-November.

First record. *V. tricolor*, Dr. Noehden, *Mavor's Agr. Berks*, 1809.

Viola tricolor, using the name in an aggregate sense, is generally

distributed through the county; it attains its maximum of frequency in light sandy soils, and is also common in the flinty arable fields on the chalk.

In our British lists *V. tricolor* is separated into two species, the *V. eu-tricolor* of Syme and the *V. arvensis* of Murray, Prod. Stirp. Gott. 73 (1770) = var. *ARVENSIS*, Linn. The former is characterized by the petals being longer than the sepals, while in the latter they are usually shorter than the sepals, but they may be also of the same length; the capsule in *arvensis* is said to be more globular. I have departed from the practice of some of our British botanists by combining the two plants under one head. I find in fact such a range of variability in the species that it would be necessary to give specific rank to many of its forms, if such artificial and variable characters as the length of the petals were chosen for the definition of species. Continental botanists have described a considerable number of micro-species, and it would appear that some of them come true from seed.

Var. *BELLA*, Gren. & Godr. Fl. Fr. i. 184, which is a large-flowered plant with the petals usually pale yellow. It is rather frequent in arable fields on the high ground near Streatley and Yattendon, and at Bradfield and Beenham. Probably it is the var. *Curtisii* of Pamplin in *Phyt.* v. 154 (1854).

Var. *BICOLOR*, Hoffm. ex Reichb. Fl. Germ. Exc. ii. 710. Specimens agreeing with plants thus named in Baenitz' Herb. Europaeum, from Prussia, have large flowers, the upper petals being more or less purple coloured. Such plants have been seen near Upper Basildon. Both of these forms belong to *V. tricolor* proper.

In *Journ. Bot.* (1870), 223, Mr. Britten referred the cornfield pansy of South Bucks to *V. Paillouxii* [sic *Paillouxi*, Jord. Obs. sur Pl. Crit. ii. (1846), 36], and in his *Contributions* (p. 45), said he had seen it at Cookham and Wargrave, and suspected this to be Pamplin's var. *Curtisii*. I cannot reconcile this statement with that expressed by Mr. Britten in *Rep. of Bot. Exch. Club*, 1882, where he writes, 'we seem to have all imaginable forms of (*V. tricolor*) here except *V. Paillouxii*, which I cannot find.'

Of the forms with small petals which would be grouped under *V. arvensis*, we have var. *SEGETALIS* (Jord. Obs. sur Plantes Crit. ii. (1846) 12, as a species), which is a form with very small petals and of somewhat lax habit, so that the internodes are longer than in ordinary *arvensis*.

Var. *PUBESCENS*, Willd., has been issued by Wirtgen in the *Pl. Select. Fl. Rhen.* No. 400; it is a more pubescent form with small petals.

Var. *MENTITA* (Jord. in Billot. Annot. 101, as a species) has been gathered near Bucklebury. These are intermediate between the two extremes. Over the Isis and Ock districts the small-flowered forms

are found, almost to the exclusion of the plants with larger flowers. In the Pang and on the chalky parts of the Kennet and Loddon the larger-flowered plants are almost as common as the small-flowered forms. Casual specimens of the cultivated var. *hortensis*, DC., Prod. i. 303 (1824), are sometimes seen about houses and railway stations, as at Wellington College Station, Shrivenham, Twyford, &c. The petals of this form rapidly diminish in size when left to run wild (var. *degener*, DC., l.c.), which I have seen on waste ground at Grandpont, at Shrivenham, &c.

V. tricolor is found in all the bordering counties.

POLYGALACEAE, Reichb. Consp. 120 (1828).

POLYGALA, Linn. Gen. n. 761 (Tournefort, Inst. t. 79).

P. vulgaris, Linn. Sp. Pl. 702 (1753). *Milkwort*.

Top. Bot. 60. Syme, E. B. ii. 35, t. 185. Nyman, 83. Fl. Oxf. 45.

Native. Pascual. Calcareous pastures, boggy places, hedge-banks, grassy chalk-slopes, &c. Locally common. P. May-July.

First record. *P. vulgaris*. Heaths and pastures, Dr. Noehden, *Mavor's Agr. Berks*, 1809.

This, however, probably refers to *P. serpyllacea*, not to restricted *P. vulgaris*. It is more probable that the record by Mr. G. G. Mill, in the *Phyt. i.* (1843) 984, refers to the latter.

1. **Isis**. Field near Appleton.

2. **Ock**. Cothill. Marcham. In the Rifle Butt valley beyond South Hinksey. Uffington. Upton, &c.

3. **Pang**. Streatley, Pamplin. Ashampstead. Ashridge Wood. Tilehurst. Unwell Wood. Basildon. Hampstead Norris. Compton.

4. **Kennet**. Mortimer, Tufnail. Benham. Very abundant in meadows near Newbury. Near Inkpen. Woodhay.

5. **Loddon**. Abundant on the chalk at Marlow, *Mil.* Bisham. Hurley. Cookham. Near Park Place.

In the *Report of London Bot. Exch. Club*, 1867, Mr. H. C. Watson records *P. ciliata*, Lebel, as occurring at Compton. He says it is a variety of *eu-vulgaris*, but Lebel's *P. ciliata* is now referred to *P. serpyllacea*. Perhaps the Compton plant [? Berks] was only a ciliate form of *P. vulgaris*.

P. vulgaris varies with bright magenta, pink, pale blue, dark blue, and rarely white flowers. It occurs in all the bordering counties.

[**P. OXYPTERA**, Reichb. Ic. Pl. Crit. i. 25 (1823).

P. multicaulis, Tausch, in *Flora*, iv. (1821) 563. Not of Velloso. Syme, E. B. ii. 36, t. 186. Nyman, 83. Fl. Oxf. 46.

Oxfordshire, Wilts, and Hants are the only counties which border Berkshire from which I have records. It is very likely to be found in Berkshire.]

P. serpyllacea, Weihe in Flora, ix. (1826) 745. *Milkwort*.

P. depressa, Wenderoth in Berlin, Jahrbuch für die Pharmacie, xxxii. (1831) 109.

Top. Bot. 61. Syme, E. B. ii. 38, t. 187 (not good). Baxter, t. 251 (but named *P. vulgaris*). Nyman, 83. Fl. Oxf. 45. Reichb. Ic. Fl. Germ. et Helv. t. 1347.

Native. Ericetal, &c. Dry pastures, heaths, downs, &c. Common and widely distributed. P. April–September.

First record. *Milkwort*, plentifully about Oxford, MS. note in Lyte's *Herball*, 1660. *P. serpyllacea*, Messrs. J. C. Melvill and H. C. Watson in *Britt. Contr.* 1871.

The plant is an abundant feature in our heath vegetation, where the flowers are often white; but forms with dark blue, pink, and pale blue flowers are found. The plant is much less frequent on clay soils, and on the chalk downs it is replaced by *P. calcarea* and *P. vulgaris*. The form or variety with ciliate bracts, pedicels, and sepals, *P. ciliata*, Lebel, has been seen at Snelsmore.

P. serpyllacea is universally distributed through Britain.

P. calcarea, F. Schultz in Flora, xx. (1837) 752. *Chalk Milkwort*.

P. amarella, N. E. Brown in E. B. Suppl. ed. 3, 34 (not of Crantz).

P. amara, D. Don, E. B. Suppl. t. 2764 (not of Linn.).

Top. Bot. 62. Syme, E. B. ii. 38, t. 188. Nyman, 83. Fl. Oxf. 46.

Native. Pascual. Chalk downs. Locally abundant. P. April–July.

First record. *P. amara*, Mr. T. B. Flower in *Robertson's Env. of Reading*, 1843, but with no locality given. Recorded as *P. calcarea*. Very fine near Pangbourn, Dr. J. T. Boswell Syme in *Phyt.* 860, 1852.

1. **Isis**. Idstone. Ridgeway. Near Ashbury.

2. **Ock**. Wantage, *Trimen in Herb. Brit. Mus.* 1866. King Standing Hill. White Horse Hill. Abundant along the grassy downs from Lowbury to Uffington Castle.

3. **Pang**. Streatley, *Herb. Borrer*. Pangbourn, *Syme*. Plentiful on the Berkshire side of the river, *Duthie in Rep. Bot. Exch. Club*, 1870. Ilsley, *Boswell*. Moultsford Downs, *Bennett in Journ. Bot.* (1873) 138. Between Tilehurst and Pangbourn. Common on the grassy downs.

4. **Kennet**. Lambourn Downs. Uffington Castle. Near Great Fawley. Walbury Camp. Childrey Warren. Farnborough. West Ilsley. Woodhay Downs.

5. **Loddon**. Harehatch near Wargrave, a *calcarea* form? *Melvill*.

P. calcarea is one of the typical flowers of Berkshire. The grassy chalk downs in spring time are a beautiful sight from the abundance of this plant in the round patches, which are so characteristic of it.

The more frequent tint of the flowers is a lapis lazuli blue, which affords a brilliant contrast to the yellow flowers of the *Helianthemum* and the darker orange flowers of the *Hippocrepis*. But plants with pale blue, white, pink, and red flowers are also found. It is abundant on the Lower Chalk and on the Upper Chalk until the latter is obscured by Tertiaries.

P. calcarea occurs in all the bordering counties.

ALSINACEAE, Wahl. Fl. Suec. i. 74 (1824).

Caryophylleae (Juss.), Benth. and Hook. Gen. Pl. i. 141.

DIANTHUS, Linn. Gen. n. 500 (*Caryophyllus*, Tournefort, Inst. t. 174).

D. Armeria, Linn. Sp. Pl. 410 (1753). *Wild Pink*.

Top. Bot. 62. Syme, E. B. ii. 45, t. 191. Nyman, 102. Fl. Oxf. 50.

Native. Viatical. Sandy fields and hedge-banks. Very local. A. June–August.

First record. *Caryophyllus pratensis*, Ger. 594. In a lane near Early Heath by Redding, *Merrett's Pinax*, 1666.

3. Pang. Englefield, *Walk. Fl. Oxf.* Side of railway near Pangbourn, *Holland*. Buckhold, between Ashampstead Common and Pangbourn, *Miss Fry*. Near Bradfield College, *Jenkinson*.

5. Loddon. Early Heath, *Merrett*. Maidenhead, *Boswell*. Winter Hill. Cookham, *Marshall*. In a waste, disused portion of the brickfields at Crazey Hill, *Stanton*. Near Wellington College, rare, *W. W. Fisher*. Aston Lane, *Leslie and Miss Stapleton*. Near Loddon Bridge; this is probably the same as *Merrett's* locality: if so, the permanence of a rare annual for over two centuries is interesting. *Mr. Tufnail* gathered it here in flower in September, 1896. Near Clewer.

D. Armeria is one of our very local species, and is confined to sandy and gravelly soil in sunny exposures in the south of Berkshire. East Gloucestershire is the only bordering county for which it is not recorded.

D. DELTOIDES, Linn. Sp. Pl. 411 (1753). *Maiden Pink*.

Incog. Syme, E. B. ii. 46, t. 192. Nyman, 101. Top. Bot. 63.

D. deltoides, Deptford Pink, *Mr. Bicheno*, old walls, &c., *Mavor's Agr. Berks*, 1809. The following entry in [*How's*] *Phyt. Brit.* may refer to this species: '*Armeria flore simplici*. William with a single flower. In a wood beyond Redding.' In *Ashmole's* copy the initials of J. Watlington are placed against the record, which is repeated in *Merrett's Pinax* on p. 10. The Nottingham Pink referred to in the following letter is *D. deltoides*. 'The Pink which grows by the highway sides of the sandy hill you descend going from Nottingham to Lenton I find to be the same which grows . . . in many places in Berkshire.' *Letter of Mr. Ray to Dr. Lister*, June 29, 1670. The reference in *With. Bot. Arr.* ed. 2, i. 442, is to the Buckinghamshire locality, but the punctuation is wrong. I possess no other information about the occurrence

of *D. deltoides* in Berkshire, and until that occurrence is confirmed, the plant will have to be queried. Mr. Tufnail tells me it is well established at Messrs. Sutton's farm in the grassy borders, probably introduced with foreign seeds.

It is recorded for the counties of Buckingham, Wilts, Surrey, and Oxford, where Dr. Neil showed it me growing in a grass field near the Warneford Asylum; it may possibly have been introduced in the latter locality.

TUNICA, Scop. Fl. Carn. ed. 2, i. 298 (1772).

T. prolifera, Scop. Fl. Carn. ed. 2, i. 299 (1772).

Dianthus prolifer, Linn. Sp. Pl. 410 (1753). *Armeria prolifera*, Lobel. Top. Bot. 62. Syme, E. B. ii. 51, t. 196. Nyman, 106. Fl. Oxf. 50. Native. Glareal. Sandy places. Very local and rare. A. June-July. First record. *Dianthus prolifer*. From the neighbourhood of Windsor, Mr. W. A. Lewis in Herb. Bot. Soc. Lond. See Cyb. Br. i. 190, 1847.

2. Ock. In a sandy place on the Boar's Hill Range in 1894. Not seen since.

5. Loddon. Near Windsor, Lewis. (The locality may be in Buckinghamshire.)

South Hampshire is the only county bordering on Berkshire from which it is recorded.

Nyman puts this plant in the genus *Tunica*. Mr. Williams places it in the sub-genus *Proliferastrum* of *Dianthus*.

SAPONARIA, Linn. Gen. 499.

***S. VACCARIA**, Linn. Sp. Pl. 409 (1753). *Cow Basil*, Gerard.

Vaccaria, Gerard, 398. *V. pyramidata*, Medik. Phil. Bot. i. 96.

Cyb. Brit. i. 194. Reichb. Ic. Fl. Germ. et Helv. vi. t. 245, f. 4996. Nyman, 98. Fl. Oxf. 49.

Casual. Waste places, cultivated fields, railway ballast. A. July-August. First record. *S. Vaccaria* has occurred in Berkshire, Watson's Cyb. Brit. i. 194, 1847.

1. Isis. Near Wytham Mill.

2. Ock. Upton, Miss Fry. North Moreton, Sister Jane Frances. By the side of railway near Oxford, at Grandpont, and at Didcot.

3. Pang. Near Tilehurst, Tufnail, and at Pangbourn.

4. Kennet. Newbury Railway, Weaver.

5. Loddon. Railway embankment, Maidenhead.

As a casual *S. Vaccaria* has been found in all the bordering counties.

***S. officinalis**, Linn. Sp. Pl. 408 (1753). *Soapwort*.

S. vulgaris, J. Bauhin, Hist. iii. 346 (1651). *S. major laevis*, C. B. Pin. 206.

Top. Bot. 64. Syme, E. B. ii. 53, t. 197. Nyman, 98. Baxt. t. 37. Fl. Oxf. 49.

Denizen. Viatical. Hedges, waste places, usually near houses. Rare. P. July-September.

First record. *S. officinalis*, Mr. Gotobed in Bot. Guide, 1805.

1. **Isis.** Near Inglesham, but only as an escape.
2. **Ock.** In Mr. Frewin's Orchard, Blewbury, *Lousley in Russell's Cat.* Meadows, Blewbury, *Boswell in Fl. Oxf.* Tubney, Walker. Near Abingdon. Plentiful by a field-road between Radley meadows and the Station. It is well established here, and there is no house in the immediate vicinity.
3. **Pang.** By the side of turnpike-road near the Bull Inn, Streatley, *Lousley.* Near Pangbourn. Bradfield. On chalk ballast near Reading.
4. **Kennet.** Boxford, Palmer. Snelsmore, evidently the relic of an old garden, the double-flowered form.
5. **Loddon.** Hedges near Old Windsor, *Golobed*, l. c. Ray Mill near Maidenhead, *Woods*: see *Winch MSS.* Near Cookham, *Everett.* Near Maidenhead.

Our plant is the glabrous form which is said to be the Linnean type, i. e. Var. *glaberrima*, Seringe in DC. Prod. i. 365.

Saponaria occurs in a more or less naturalized condition in all the bordering counties.

SILENE, Linn. Gen. n. 503 (*Viscago*, Dill. Hort. Elth. 309).

S. Cucubalus, Wibel, Prim. Fl. Werth. 241 (1797). *Bladder Campion*, *Spalling Poppy*.

S. inflata, Sm. Fl. Brit. ii. 467 (1800). *Cucubalus Behen*, Linn. Sp. Pl. sine var. b 414 (1753). *C. angustifolius*, Miller, Gard. Dict. ed. 8 (1768). *Silene angustifolia*, Guss. *Behen album*, Gerard, 550 (1597).

Top. Bot. 64. Syme, E. B. ii. 56, t. 199. Nyman, 88. Fl. Oxf. 48. Native. Pascual and agrestal. Waysides, cultivated and fallow fields, &c. Very common and generally distributed, but less frequent, and indeed disappearing from the uncultivated heath lands of the south-west. P. May–August.

First record. *Behen album hispidum*, Hairy Spatling Poppy, plentiful about Oxford, *Merrett's Pinax*, 14, 1666. Also given in *Mr. M. Harding's MS. of the 17th Century.* *Cucubalus behen*, *Mavor's Agr. Berks*, 1809.

The Bladder Campion is a variable species; the commoner plant in the north and west of the county is glabrous, but in the south, especially in dry chalk fields, a more or less hairy form prevails, which is the plant referred to by Merrett, and is the var. *PUBERULA* of Hook. fil. Stud. Fl. ed. 3, 55 (1884). *S. puberula*, Jord. in Boreau, Fl. du Centre Fr. ii. 94, not of Boissier, which occurs as follows.

1. **Isis.** Buckland. Idstone. Ashbury. Shrivenham. Near Weyland's Smithy.
2. **Ock.** Cothill. Cumnor. Uffington. Wantage. Lockinge. Didecot. Lowbury. Blewbury, a common form on the Chalk formation.

3. **Pang.** Common on the Chalk, as at Pangbourn, Moulsoford, &c.
4. **Kennet.** Common near Beedon, *Rev. W. M. Rogers*. Common on the Chalk, ascending to the top of Walbury Camp, 957 feet.
5. **Loddon.** Near Wellington Coll., *Tufnail*. Very common near Marlow and in the fields about Hurley, Wargrave, and near Maidenhead. It also occurs near the Blackwater at Jouldern's Ford, and by the Thames near Bray.

Occasionally plants of glabrous *S. Cucubalus*, which in itself has a wide range of variability, are found with the var. *puberula*, so that soil is not the only cause of the development of pubescence.

S. Cucubalus occurs in all the bordering counties.

****S. CONICA**, Linn. Sp. Pl. 418 (1753).

S. conoidea, Huds. Fl. Angl. ed. 2, 189 (not of Linn.). *Lychnis conica*, Scop. Fl. Carn. ed. 2, i. 308.

Top. Bot. 66. Syme, E. B. ii. 58, t. 201. Nyman, 97. Fl. Oxf. 49.

Casual. Included as a native plant in *Britten's Contributions*, 1871, on the authority of Mr. H. Boswell, but he tells me that he only found a *single* specimen in cultivated ground near Newbury in 1858, I believe in garden ground near the railway, where a great number of casuals are found. It has no claim to be considered native in Berkshire, and is only of casual occurrence in the bordering counties of Hants, Surrey, and Oxford.

****S. COKOIDEA**, Linn. Sp. Pl. 418 (1753). Nyman, 97. Reichb. Ic. Fl. Germ. et Helv. vi. f. 5061.

Casual. Waste ground at Grandpont, Oxford, 1891, site now built over.

****S. ARMERIA**, Linn. Sp. Pl. 420 (1753). *Catchfly*.

Muscipula Lobelii, Ger. Em. 601. Syme, E. B. ii. 61, t. 204. Baxt. t. 120. Nyman, 89.

Casual or alien. Sonning, *Mr. S. Rudge*, 1800, *Herb. Brit. Mus.*, but this may be only a garden specimen.

***S. DICHOTOMA**, Ehrh. Beitr. vii. 144 (1792). Not of Gilibert.

Nyman, 93. Fl. Oxf. 49. Reichb. Ic. Fl. Germ. et Helv. vi. f. 5071.

Casual, or colonist from Eastern Europe. Waste ground, clover fields, increasing in frequency. A. June-August.

1. **Lsis.** Cumnor, *Riddelsdell*, Pusey. Introduced with pheasant corn.

2. **Ock.** On railway ballast at Didcot, 1892. Clover field near Dry Sandford.

3. **Pang.** Field between Basildon and Pangbourn.

5. **Loddon.** Field where rubbish had been placed, near Maidenhead.

S. dichotoma has been found by me in Oxfordshire and in Buckinghamshire; in the latter county it occurred very abundantly in a field near Lane End.

****S. NUTANS**, Linn. Sp. Pl. 417 (1753). *Nottingham Catchfly*.

Top. Bot. 65. Syme, E. B. ii. 64, t. 207. Nyman, 90.

Casual. One plant in Wellington College grounds, *Rev. C. W. Penny*. A few plants have, I believe, been found since that date. How it became introduced there it is rather difficult to suggest.

***S. QUINQUEVULNERA**, Linn. Sp. Pl. 416 (1753).

Syme, E. B. ii. 60, t. 203. Nyman, 97. Fl. Oxf. 49.

Casual or Colonist? Cornfields and waste places. Very rare. A. July.

1. **Isis.** Near Inglesham, but only as an escape.
2. **Ock.** In Mr. Frewin's Orchard, Blewbury, *Lousley in Russell's Cat.* Meadows, Blewbury, *Boswell in Fl. Oxf.* Tubney, *Walker.* Near Abingdon. Plentiful by a field-road between Radley meadows and the Station. It is well established here, and there is no house in the immediate vicinity.
3. **Pang.** By the side of turnpike-road near the Bull Inn, Streatley, *Lousley.* Near Pangbourn. Bradfield. On chalk ballast near Reading.
4. **Kenet.** Boxford, *Palmer.* Snelsmore, evidently the relic of an old garden, the double-flowered form.
5. **Loddon.** Hedges near Old Windsor, *Gotobed*, l. c. Ray Mill near Maidenhead, *Woods*: see *Winch MSS.* Near Cookham, *Everett.* Near Maidenhead.

Our plant is the glabrous form which is said to be the Linnean type, i. e. Var. *glaberrima*, Seringe in DC. Prod. i. 365.

Saponaria occurs in a more or less naturalized condition in all the bordering counties.

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Top. Bot. 64. Syme, E. B. ii. 56, t. 199. Nyman, 88. Fl. Oxf. 48.

Native. Pascual and agrestal. Waysides, cultivated and fallow fields, &c. Very common and generally distributed, but less frequent, and indeed disappearing from the uncultivated heath lands of the south-west. P. May-August.

First record. *Behen album hispidum*, Hairy Spatling Poppy, plentiful about Oxford, *Merrett's Pinax*, 14, 1666. Also given in *Mr. M. Harding's MS. of the 17th Century.* *Cucubalus behen*, *Mavor's Agr. Berks*, 1809.

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3. **Pang.** Common on the Chalk, as at Pangbourn, Moultsford, &c.
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****S. CONICA**, Linn. Sp. Pl. 418 (1753).

S. conoidea, Huds. Fl. Angl. ed. 2, 189 (not of Linn.). *Lychnis conica*, Scop. Fl. Carn. ed. 2, i. 308.

Top. Bot. 66. Syme, E. B. ii. 58, t. 201. Nyman, 97. Fl. Oxf. 49.

Casual. Included as a native plant in *Britten's Contributions*, 1871, on the authority of Mr. H. Boswell, but he tells me that he only found a *single* specimen in cultivated ground near Newbury in 1858, I believe in garden ground near the railway, where a great number of casuals are found. It has no claim to be considered native in Berkshire, and is only of casual occurrence in the bordering counties of Hants, Surrey, and Oxford.

****S. COCKOIDEA**, Linn. Sp. Pl. 418 (1753). Nyman, 97. Reichb. Ic. Fl. Germ. et Helv. vi. f. 5061.

Casual. Waste ground at Grandpont, Oxford, 1891, site now built over.

****S. ARMERIA**, Linn. Sp. Pl. 420 (1753). *Catchfly*.

Muscipula Lobelii, Ger. Em. 601. Syme, E. B. ii. 61, t. 204. Baxt. t. 120. Nyman, 89.

Casual or alien. Sonning, *Mr. S. Rudge*, 1800, *Herb. Brit. Mus.*, but this may be only a garden specimen.

***S. DICHOTOMA**, Ehrh. Beitr. vii. 144 (1792). Not of Gilibert.

Nyman, 93. Fl. Oxf. 49. Reichb. Ic. Fl. Germ. et Helv. vi. f. 5071.

Casual, or colonist from Eastern Europe. Waste ground, clover fields, increasing in frequency. A. June-August.

1. **Isis.** Cumnor, *Riddeladell*. Pusey. Introduced with pheasant corn.

2. **Ock.** On railway ballast at Dideot, 1892. Clover field near Dry Sandford.

3. **Pang.** Field between Basildon and Pangbourn.

5. **Loddon.** Field where rubbish had been placed, near Maidenhead.

S. dichotoma has been found by me in Oxfordshire and in Buckinghamshire; in the latter county it occurred very abundantly in a field near Lane End.

****S. NUTANS**, Linn. Sp. Pl. 417 (1753). *Nottingham Catchfly*.

Top. Bot. 65. Syme, E. B. ii. 64, t. 207. Nyman, 90.

Casual. One plant in Wellington College grounds, *Rev. C. W. Penny*. A few plants have, I believe, been found since that date. How it became introduced there it is rather difficult to suggest.

***S. QUIQUEVULNERA**, Linn. Sp. Pl. 416 (1753).

Syme, E. B. ii. 60, t. 203. Nyman, 97. Fl. Oxf. 49.

Casual or Colonist? Cornfields and waste places. Very rare. A. July.

1. **Isis.** Near Inglesham, but only as an escape.
2. **Ock.** In Mr. Frewin's Orchard, Blewbury, *Lousley* in *Russell's Cat.* Meadows, Blewbury, *Boswell* in *Fl. Oxf.* Tubney, *Walker*. Near Abingdon. Plentiful by a field-road between Radley meadows and the Station. It is well established here, and there is no house in the immediate vicinity.
3. **Pang.** By the side of turnpike-road near the Bull Inn, Streatley, *Lousley*. Near Pangbourn. Bradfield. On chalk ballast near Reading.
4. **Kennet.** Boxford, *Palmer*. Snelsmore, evidently the relic of an old garden, the double-flowered form.
5. **Loddon.** Hedges near Old Windsor, *Gotobed*, l. c. Ray Mill near Maidenhead, *Woods*: see *Winch MSS.* Near Cookham, *Everett*. Near Maidenhead.

Our plant is the glabrous form which is said to be the Linnean type, i. e. Var. *glaberrima*, *Seringe* in *DC. Prod.* i. 365.

Saponaria occurs in a more or less naturalized condition in all the bordering counties.

SILENE, Linn. Gen. n. 503 (*Viscago*, Dill. Hort. Elth. 309).

S. Cucubalus, Wibel, Prim. Fl. Werth. 241 (1797). *Bladder Campion*, *Spalling Poppy*.

S. inflata, Sm. Fl. Brit. ii. 467 (1800). *Cucubalus Behen*, Linn. Sp. Pl. sine var. b 414 (1753). *C. angustifolius*, Miller, Gard. Dict. ed. 8 (1768). *Silene angustifolia*, Guss. *Behen album*, Gerard, 550 (1597).

Top. Bot. 64. Syme, E. B. ii. 56, t. 199. Nyman, 88. Fl. Oxf. 48.

Native. Pascual and agrestal. Waysides, cultivated and fallow fields, &c. Very common and generally distributed, but less frequent, and indeed disappearing from the uncultivated heath lands of the south-west. P. May-August.

First record. *Behen album hispidum*, Hairy Spatling Poppy, plentiful about Oxford, *Merrett's Pinax*, 14, 1666. Also given in *Mr. M. Harding's MS. of the 17th Century*. *Cucubalus behen*, *Mavor's Agr. Berks*, 1809.

The Bladder Campion is a variable species; the commoner plant in the north and west of the county is glabrous, but in the south, especially in dry chalk fields, a more or less hairy form prevails, which is the plant referred to by Merrett, and is the var. *PUBERULA* of Hook. fl. Stud. Fl. ed. 3, 55 (1884). *S. puberula*, Jord. in Boreau, Fl. du Centre Fr. ii. 94, not of Boissier, which occurs as follows.

1. **Isis.** Buckland. Idstone. Ashbury. Shrivenham. Near Weyland's Smithy.
2. **Ock.** Cothill. Cumnor. Uffington. Wantage. Lockinge. Dideot. Lowbury. Blewbury, a common form on the Chalk formation.

3. Pang. Common on the Chalk, as at Pangbourn, Moulsoford, &c.
4. Kennet. Common near Beedon, *Rev. W. M. Rogers*. Common on the Chalk, ascending to the top of Walbury Camp, 957 feet.
5. Loddon. Near Wellington Coll., *Tufnail*. Very common near Marlow and in the fields about Hurley, Wargrave, and near Maidenhead. It also occurs near the Blackwater at Jouldern's Ford, and by the Thames near Bray.

Occasionally plants of glabrous *S. Cucubalus*, which in itself has a wide range of variability, are found with the var. *puberula*, so that soil is not the only cause of the development of pubescence.

S. Cucubalus occurs in all the bordering counties.

****S. CONICA**, Linn. Sp. Pl. 418 (1753).

S. conoidea, Huds. Fl. Angl. ed. 2, 189 (not of Linn.). *Lychnis conica*, Scop. Fl. Carn. ed. 2, i. 308.

Top. Bot. 66. Syme, E. B. ii. 58, t. 201. Nyman, 97. Fl. Oxf. 49.

Casual. Included as a native plant in *Britten's Contributions*, 1871, on the authority of Mr. H. Boswell, but he tells me that he only found a *single* specimen in cultivated ground near Newbury in 1858, I believe in garden ground near the railway, where a great number of casuals are found. It has no claim to be considered native in Berkshire, and is only of casual occurrence in the bordering counties of Hants, Surrey, and Oxford.

****S. COKOIDEA**, Linn. Sp. Pl. 418 (1753). Nyman, 97. Reichb. Ic. Fl. Germ. et Helv. vi. f. 5061.

Casual. Waste ground at Grandpont, Oxford, 1891, site now built over.

****S. ARMERIA**, Linn. Sp. Pl. 420 (1753). *Catchfly*.

Muscipula Lobelii, Ger. Em. 601. Syme, E. B. ii. 61, t. 204. Baxt. t. 120. Nyman, 89.

Casual or alien. Sonning, *Mr. S. Rudge*, 1800, *Herb. Brit. Mus.*, but this may be only a garden specimen.

***S. DICHOTOMA**, Ehrh. Beitr. vii. 144 (1792). Not of Gilibert.

Nyman, 93. Fl. Oxf. 49. Reichb. Ic. Fl. Germ. et Helv. vi. f. 5071.

Casual, or colonist from Eastern Europe. Waste ground, clover fields, increasing in frequency. A. June-August.

1. *Isis*. Cumnor, *Riddelsdell*. Pusey. Introduced with pheasant corn.

2. *Ock*. On railway ballast at Didcot, 1892. Clover field near Dry Sandford.

3. *Pang*. Field between Basildon and Pangbourn.

5. *Loddon*. Field where rubbish had been placed, near Maidenhead.

S. dichotoma has been found by me in Oxfordshire and in Buckinghamshire; in the latter county it occurred very abundantly in a field near Lane End.

****S. NUTANS**, Linn. Sp. Pl. 417 (1753). *Nottingham Catchfly*.

Top. Bot. 65. Syme, E. B. ii. 64, t. 207. Nyman, 90.

Casual. One plant in Wellington College grounds, *Rev. C. W. Penny*. A few plants have, I believe, been found since that date. How it became introduced there it is rather difficult to suggest.

***S. QUINQUEVULNERA**, Linn. Sp. Pl. 416 (1753).

Syme, E. B. ii. 60, t. 203. Nyman, 97. Fl. Oxf. 49.

Casual or Colonist? Cornfields and waste places. Very rare. A. July.

1. **Isis.** Near Inglesham, but only as an escape.
2. **Ock.** In Mr. Frewin's Orchard, Blewbury, *Lousley in Russell's Cat.* Meadows, Blewbury, *Boswell in Fl. Oxf.* Tubney, *Walker.* Near Abingdon. Plentiful by a field-road between Radley meadows and the Station. It is well established here, and there is no house in the immediate vicinity.
3. **Pang.** By the side of turnpike-road near the Bull Inn, Streatley, *Lousley.* Near Pangbourn. Bradfield. On chalk ballast near Reading.
4. **Kenнет.** Boxford, *Palmer.* Snelsmore, evidently the relic of an old garden, the double-flowered form.
5. **Loddon.** Hedges near Old Windsor, *Gotobed*, l. c. Ray Mill near Maidenhead, *Woods*: see *Winch MSS.* Near Cookham, *Everett.* Near Maidenhead.

Our plant is the glabrous form which is said to be the Linnean type, i. e. Var. *glaberrima*, Seringe in DC. Prod. i. 365.

Saponaria occurs in a more or less naturalized condition in all the bordering counties.

SILENE, Linn. Gen. n. 503 (*Viscago*, Dill. Hort. Elth. 309).

S. Cucubalus, Wibel, Prim. Fl. Werth. 241 (1797). *Bladder Campion*, *Spatling Poppy*.

S. inflata, Sm. Fl. Brit. ii. 467 (1800). *Cucubalus Behen*, Linn. Sp. Pl. sine var. b 414 (1753). *C. angustifolius*, Miller, Gard. Dict. ed. 8 (1768). *Silene angustifolia*, Guss. *Behen album*, Gerard, 550 (1597).

Top. Bot. 64. Syme, E. B. ii. 56, t. 199. Nyman, 88. Fl. Oxf. 48.

Native. Pascual and agrestal. Waysides, cultivated and fallow fields, &c. Very common and generally distributed, but less frequent, and indeed disappearing from the uncultivated heath lands of the south-west. P. May-August.

First record. *Behen album hispidum*, Hairy Spatling Poppy, plentiful about Oxford, *Merrett's Pinax*, 14, 1666. Also given in *Mr. M. Harding's MS. of the 17th Century.* *Cucubalus behen*, *Mavor's Agr. Berks*, 1809.

The Bladder Campion is a variable species; the commoner plant in the north and west of the county is glabrous, but in the south, especially in dry chalk fields, a more or less hairy form prevails, which is the plant referred to by Merrett, and is the var. *PUBERULA* of Hook. fl. Stud. Fl. ed. 3, 55 (1884). *S. puberula*, Jord. in Boreau, Fl. du Centre Fr. ii. 94, not of Boissier, which occurs as follows.

1. **Isis.** Buckland. Idstone. Ashbury. Shrivenham. Near Weyland's Smithy.
2. **Ock.** Cothill. Cumnor. Uffington. Wantage. Lockinge. Dideot. Lowbury. Blewbury, a common form on the Chalk formation.

3. Pang. Common on the Chalk, as at Pangbourn, Moulsoford, &c.
4. Kennet. Common near Beedon, *Rev. W. M. Rogers*. Common on the Chalk, ascending to the top of Walbury Camp, 957 feet.
5. Loddon. Near Wellington Coll., *Tufnail*. Very common near Marlow and in the fields about Hurley, Wargrave, and near Maidenhead. It also occurs near the Blackwater at Jouldern's Ford, and by the Thames near Bray.

Occasionally plants of glabrous *S. Cucubalus*, which in itself has a wide range of variability, are found with the var. *puberula*, so that soil is not the only cause of the development of pubescence.

S. Cucubalus occurs in all the bordering counties.

****S. CONICA**, Linn. Sp. Pl. 418 (1753).

S. conoidea, Huds. Fl. Angl. ed. 2, 189 (not of Linn.). *Lychnis conica*, Scop. Fl. Carn. ed. 2, i. 308.

Top. Bot. 66. Syme, E. B. ii. 58, t. 201. Nyman, 97. Fl. Oxf. 49.

Casual. Included as a native plant in *Britten's Contributions*, 1871, on the authority of Mr. H. Boswell, but he tells me that he only found a single specimen in cultivated ground near Newbury in 1858, I believe in garden ground near the railway, where a great number of casuals are found. It has no claim to be considered native in Berkshire, and is only of casual occurrence in the bordering counties of Hants, Surrey, and Oxford.

****S. CONOIDEA**, Linn. Sp. Pl. 418 (1753). Nyman, 97. Reichb. Ic. Fl. Germ. et Helv. vi. f. 5061.

Casual. Waste ground at Grandpont, Oxford, 1891, site now built over.

****S. ARMERIA**, Linn. Sp. Pl. 420 (1753). *Catchfly*.

Muscipula Lobelii, Ger. Em. 601. Syme, E. B. ii. 61, t. 204. Baxt. t. 120. Nyman, 89.

Casual or alien. Sonning, *Mr. S. Rudge*, 1800, *Herb. Brit. Mus.*, but this may be only a garden specimen.

***S. DICHOTOMA**, Ehrh. Beitr. vii. 144 (1792). Not of Gilibert.

Nyman, 93. Fl. Oxf. 49. Reichb. Ic. Fl. Germ. et Helv. vi. f. 5071.

Casual, or colonist from Eastern Europe. Waste ground, clover fields, increasing in frequency. A. June-August.

1. *Isis*. Cumnor, *Riddelsdell*. Pusey. Introduced with pheasant corn.

2. *Ock*. On railway ballast at Didcot, 1892. Clover field near Dry Sandford.

3. *Pang*. Field between Basildon and Pangbourn.

5. *Loddon*. Field where rubbish had been placed, near Maidenhead.

S. dichotoma has been found by me in Oxfordshire and in Buckinghamshire; in the latter county it occurred very abundantly in a field near Lane End.

****S. NUTANS**, Linn. Sp. Pl. 417 (1753). *Nottingham Catchfly*.

Top. Bot. 65. Syme, E. B. ii. 64, t. 207. Nyman, 90.

Casual. One plant in Wellington College grounds, *Rev. C. W. Penny*. A few plants have, I believe, been found since that date. How it became introduced there it is rather difficult to suggest.

***S. QUIQUEVULNERA**, Linn. Sp. Pl. 416 (1753).

Syme, E. B. ii. 60, t. 203. Nyman, 97. Fl. Oxf. 49.

Casual or Colonist? Cornfields and waste places. Very rare. A. July.

4. **Kennet.** Cornfield at Newbury, *New Bot. Guide*, 1835, where the *Botanist's Guide* of 1805 is cited for its occurrence in Berkshire, but I am unable to find any reference there. Possibly Watson had in mind a manuscript note made by Mr. Winch in a copy of Smith's *Flora Britannica*, which is in the Library of the Linnean Soc., where it is said to grow in cornfields at Newbury, on the authority of Mr. Bicheno.
5. **Loddon.** In the grounds of Wellington College, *Penny*.

S. anglica, Linn. Sp. Pl. 416 (1753). *Small Corn Catchfly*.

Lychnis arvensis anglica, Lobel. Ic. 97 (1655).

Top. Bot. 65. Syme, E. B. ii. 60, t. 202. Nyman, 97. Curt. Fl. Lond. iv. t. 30. Fl. Oxf. 49.

Colonist or Native. Agrestal, viatical. Sandy cornfields, gravelly waysides, &c. Local and rather rare. A. June–August.

First record. *S. anglica*, Mr. H. C. Watson and Rev. C. W. Penny in *Britt. Contr.* 1871.

2. **Ock.** About Tubney, *Walker*. Sandy cornfields on the Boar's Hill Range.

4. **Kennet.** Mortimer, *Holland*. Bucklebury, *Mr. Weaver*. Midgham.

5. **Loddon.** Near Wellington College, *Penny*. Near Wokingham, *Crawley*. Remenham, but not common, *Stanton*. Ambarrow. Finchampstead. Roadside near Wokingham. Abundant in fields near Bracknell.

Probably both *S. anglica* and *S. quinquevulnera* are varieties of the continental *S. gallica*, Linn.

S. anglica has been reported for all the counties bordering on Berkshire, except East Gloucestershire.

S. noctiflora, Linn. Sp. Pl. 419 (1753). *Night-flowering Catchfly*.

Lychnis noctiflora (Park, 1640). Schreb. Spic. Fl. Lips. 31. *Melandrium noctiflorum*, Fries. in Bot. Notis. (1843) 143.

Top. Bot. 66. Syme, E. B. ii. 66, t. 209. Nyman, 93. Fl. Oxf. 48.

Colonist. Agrestal. Cornfields, especially on sandy soil. Local. A. July–November.

First record. *S. noctiflora*, Mr. Baxter in *Purt. Midl. Fl. App.* iii. 37, 1821.

1. **Isis.** Cornfield near Wytham Wood, *Baxter*. Cumnor. Faringdon. Pusey, &c., *Boswell*. Between Kingstone and Charney, *Wait*. Appleton.
2. **Ock.** Fields between Kennington and Bagley, *Thurland*. Between Ferry Hinksey and Cumnor, *Boswell* in *Fl. Oxf.* Shippon. Radley. Cumnor. Frilford. Boar's Hill. Marcham. Chawley. Wittenham. Near Didcot.
3. **Pang.** Moultsford. Ilsley. Bradfield. Sulham. Tilehurst.
4. **Kennet.** Field above Little Shefford Farm full of it, *Mrs. Batson*. Burghfield. Beenham. Padworth. Theale.
5. **Loddon.** Abundant about Wargrave, *Britten*. Remenham,

Stanton. Twyford. Maidenhead. Hurley. Sunninghill. Sandhurst.

S. noctiflora, which is found in all the bordering counties, is much more frequent than the foregoing records show, but it can scarcely be classed among our common plants. The flowers, which are yellow on the outside and rose-coloured on the inside, offer a ready means of distinguishing it at a glance from the much commoner *Lychnis alba*.

LYCHNIS, Linn. Ger. n. 517 (Tournefort, Inst. t. 175).

L. dioica, Linn. Sp. Pl. 437 (1753). *Red Campion*.

L. dioecia, Miller, Gard. Dict. ed. 8 (1768). *L. diurna*, Sibth. Fl. Ox. 145 (1794). *Silene diurna*, Gren. and Godr. Fl. Fr. i. 217. *Melandrium sylvestre*, Roehl. Deutsch. Fl. i. 274 (1796).

Top. Bot. 67. Syme, E. B. ii. 69, t. 211. Nyman, 86. Fl. Oxf. 47.

Native. Sylvestral. Woods, hedges, railway-banks, shady places, &c. Locally plentiful. P. April–September.

First record. *Lychnis sylvestris minus hirsuta flore rubello simplici circa Oxonium in fossis et ad margines sepium silvarumque humidorum passim*, Morison, *Hist. Ox.* ii. 541, 1680. Given as *L. deioca* in *Mavor's Agr. Berks*, 1809.

1. **Isis.** Bourton. Ashbury. Faringdon. Appleton. Pusey. Wytham. Cumnor fields, &c. Rather plentiful and generally distributed in this district.
2. **Ock.** Uffington Wood. Pusey. Tubney. Frilford. Bagley. Cumnor. Boar's Hill Range. Near Radley. Cothill. Wittenham, &c. Rather common in this district, but less plentiful in the centre of the Vale.
3. **Pang.** Tilehurst, *Tufnail*. By the Pang, near Bradfield. Near Tidmarsh. Unwell Wood.
4. **Kennet.** Newbury, *Russell's Cat.* Mortimer, *Tufnail*. Very abundant in Riever Wood near Walbury Camp. In 1890, when the brushwood had been cleared, it occurred in so great profusion as to be noticeable for more than a mile away. Hodcott. Catmore. Farnborough, &c.
5. **Loddon.** Windsor, *Bolton King*. Near Finchampstead. Sandhurst. Arborfield. Wellington College. Crowthorn. Sonning. Ashley Hill, &c. Mr. Stanton tells me it is almost absent from the district round Park Place.

The flowers vary in tint from deep crimson to white, but the pale-flowered forms are not always owing to hybridity. They occur frequently with the type, as at Appleton, Wytham, Cumnor, Walbury Camp, &c. A small-flowered form has been noticed at Idstone, Ashbury, and Appleton. The foliage is sometimes of a yellowish green colour

L. dioica usually occurs on damp soil, and is most plentiful at the junction of two geological formations, the lower one of which is a clay, so that at the junction of the Coralline Oolite with Oxford Clay, or the Greensand with the Gault, a beautiful display of the plant is to be found if the country be at all wooded.

L. dioica occurs in all the bordering counties. It may be worth mentioning that this abundant plant of Berkshire and Oxfordshire is one of the rarest ingredients of the Cambridgeshire Flora.

L. alba, Miller, Gard. Dict. ed. 8 (1768). *White Campion*.

L. vespertina, Sibth. Fl. Ox. 146 (1794). *Silene pratensis*, Gren. and Godr. Fl. Fr. i. 216. *Melandrium pratense*, Roehl, l. c.

Top. Bot. 67. Syme, E. B. ii. 67, t. 210. Nyman, 86. Fl. Oxf. 48.

Native. Agrestal. Hedges, cultivated fields, commons, &c. Common and generally distributed. B. or P. April-October.

First record. *L. vespertina*, Russell's Cat. 1839, without locality.

Often found with pink flowers (as at Frilford, Dyer), but, so far as my observation goes, almost entirely when *L. dioica* is in the vicinity.

L. DIOICA × **ALBA**. Undoubted hybrids of the two plants have been noted in the Isis division near Ashbury, in the Ock district near Culham Cutting, near Frilford, Cothill, Radley, Bagley; in the Pang district at Bradfield; at Hodecott in the Kennet, and in the Loddon district near Finchampstead; in all these cases *L. dioica* was growing with *L. alba*. In the Culham Railway Cutting, which is in Oxfordshire, there is a most beautiful growth of *L. dioica*, and in the arable fields, which are close by, pink-flowered *L. alba* may almost always be found. On the upland chalk fields, where *L. dioica* is absent, *L. alba* is almost invariably white, but in the valley of the Pang, where *L. dioica* again appears, *L. dioica* × *alba* is again found. Specimens from near Bradfield College were distributed through the Bot. Exch. Club in 1892, by the author.

L. alba occurs on the top of Walbury Camp at 959 feet, and is found in all the bordering counties.

The red-flowered plant is the *Melandrium pratense*, var. *incarnatum*, Lamotte, Fl. du Plateau, 131.

L. Flos-cuculi, Linn. Sp. Pl. 436 (1753). *Ragged Robin*, Wild Williams, *Meadow Pink*.

Flos-cuculi pratensis, Trag. (1552). *Armoraria pratensis* mas, Ger. Em.

600. *Coronaria Flos-cuculi*, A. Br. in Flora, xxvi. (1843) 368.

Top. Bot. 67. Syme, E. B. ii. 71, t. 212. Baxt. t. 71. Nyman, 85. Fl. Oxf. 47.

Native. Paludal. Wet meadows, woods, and osier holts. Common and generally distributed. P. April-October.

First record. *L. Flos-cuculi*, Dr. Noehden, *Mavor's Agr. Berks*, 1809. With white flowers in a lane leading out of the Abingdon Road to Bagley Wood, *Bart. Phaen. Bot.* n. 71. Wet meadows, Marlow frequent, Mr. G. G. Mill in *Phyt.* i. 984, 1843.

When the flowers are nearly sessile it is the var. *congesta*, Lec. et Lamotte, Cat. 98.

The Ragged Robin is much too abundant and too widely distributed to render it necessary to give special localities. Some of the Thames meadows are a beautiful sight from the profusion of its blossoms. The banks of the railway between Bracknell and Wokingham and the Kennet meadows show it in great beauty. It is very abundant in Hampstead Marshall Park. I have seen it with white flowers in Wytham, in Bagley, at Moultsford and Tidmarsh, and with very pale flowers in Nyot meadows near Abingdon.

L. Flos-cuculi is common in all the bordering counties.

L. Githago, Scop. Fl. Carn. ed. 2, i. 310 (1772). *Corn Cockle*.

Agrostemma Githago, Linn. Sp. Pl. 435 (1753). *Githago*, Dodoens.

G. segetum, Link, Diss. Bot. Suerin. 62 (1795).

Top. Bot. 68. Syme, E. B. ii. 74, t. 215. Baxt. t. 175. Nyman, 85. Fl. Oxf. 46.

Colonist. Agrestal. Cornfield, chiefly on a light soil, rather local. A. June-August.

First record. *Agrostemma githago*. Too common, *Mavor's Agr. Berks*, 1809.

1. **Isis**. Pusey, *Boswell*. Carswell, *Miss M. Niven*. Fields near Buckland.

2. **Ock**. Tubney, *Walker*. Ferry Hinksey. Frilford. Abingdon. Shippon. Blewbury. Marcham. Dry Sandford. Bradfield, *Jenkinson*.

3. **Pang**. Tidmarsh. Bucklebury. Moultsford. Basildon. Tilehurst. Streatley. Hermitage.

4. **Kennet**. Near Newbury, *Russell's Cat*. Very plentiful near Shefford. Mortimer. Padworth. Kintbury. Theale. Near Bagnor.

5. **Loddon**. Common fields opposite Bisham woods, &c., *Mill*. Near Wellington College, *Penny*. Remenham, *Stanton*. Fields at Sonning, *Tufnail*. Near Virginia Water. Ascot. Jouldern's Ford. Farley Hill. Clewer. Maidenhead. Hurley. Wargrave. Cookham.

L. Githago usually has the segments of the calyx much longer than the corolla, but I saw a specimen in a field near Moultsford where they scarcely exceeded it. This is probably the *Agrostemma Githago*, var. *microcalyx*, Doell, Fl. Baden. 1232.

L. Githago is found in all the bordering counties.

CERASTIUM, Linn. Gen. n. 518 (*Myosotis*, Tournefort, t. 126).

C. quaternellum, Fenzl. in Verb. Alsineen, 56 (1833). *Upright Pearlwort*.

C. erectum, Coss. and Germ. Fl. Env. Paris, 39 (1845). *Sagina erecta*, Linn. Sp. Pl. 128 (1753). *Moenchia erecta*, Fl. Wett. i. 219. *M. quaternella*, Ehrh. Beitr. ii. 180 (1788).

Top. Bot. 68. Syme, E. B. ii. 77, t. 217. Nyman, 111. Baxt. t. 460. Fl. Oxf. 52.

Native. Ericetal. Confined to heathy commons where it is local.

A. April-May.

First record. *Moenchia erecta*, Sm., Mr. J. G. Baker in *Britt. Contr.* 1871.

3. **Pang.** Abundant on Bucklebury Common.

4. **Kennet.** Thatcham, *Jackson*. Wickham Heath. Greenham Common. Mortimer. Mortimer West Common. Snelsmore. Lower Bucklebury Common.

5. **Loddon.** Ascot Racecourse, *Baker*. Well. Coll. List. Windsor Park, *Bolton King*. Near Virginia Water. Near the railway between Bracknell and Ascot.

Probably this species occurs more frequently than the foregoing records show, but, being an early-flowering annual, it is very easily overlooked. After flowering the plant dries up and becomes even less conspicuous, and it was in this condition that I first found it on Greenham Common. Not recorded for the Isis or Ock districts, but may be found in the heathy portions of Wytham or Tubney.

This plant was called *Moenchia quaternella* in the *Flora of Oxfordshire*, and I think it is well entitled to the generic distinction which Mr. Williams claims for it; of the counties bordering Berkshire it is recorded for all except East Gloucestershire, but it has not been seen by me in Oxfordshire; it occurs by Virginia Water in Surrey, at Dropmore in Bucks, and at Silchester in Hants, in each case near to the county border.

[**C. PUMILUM**, Curt. Fl. Lond. fasc. vi. t. 30 (1798). Syme, E. B. ii. 79, t. 219. Fl. Oxf. 52.

Occurs in Gloucestershire, Wilts, Surrey, and the Isle of Wight.]

[**C. TETRANDRUM**, Curt. Fl. Lond. vi. 31 (1798). Syme, E. B. ii. 78, t. 218.

Is reported from Surrey, South Hants, and West Gloucestershire.]

C. semidecandrum, Linn. Sp. Pl. 438 (1753). *Least Mouse-ear Chickweed*.

Top. Bot. 80. Syme, E. B. ii. 81, t. 220. Nyman, 110. Fl. Oxf. 52.

Native. Glareal. Walls, dry fields, heaths, &c. Local. A. March-June.

First record. Messrs. H. C. Watson and H. Boswell in *Britt. Contr.* 1871. Unlocalized.

1. **Isis.** Carswell, *Miss M. Niven*. Wytham. Besilsleigh.

2. **Ook.** Marcham, *Walker*. Blewbury Downs, *Bolton King*. Cothill. Frilford. Boar's Hill. Tubney. Pusey. Bagley.
3. **Pang.** Bucklebury. Cold Ash Common. Oare Common.
4. **Kennet.** Lower Bucklebury. Mortimer Common. Greenham and Crookham Commons. Wickham Heath. Ufton.
5. **Loddon.** Windsor Park, *Bolton King*. Wellington College and Wokingham, *Penny*, in *Journ. Bot.* (1873) 138. Stubbing's Heath. Farley Hill. Twyford. Sonning. Finchampstead. Bracknell. Ascot. Sandhurst. Binfield, &c.

Var. **GLANDULOSUM**, Koch, Syn. Fl. Germ. 121 (1837), a more glandular and a rather more slender form has been noticed near Bracknell, Mortimer, and near Pusey.

C. semidecandrum occurs in all the bordering counties.

C. viscosum, Linn. Sp. Pl. 437 (1753). *Broad-leaved Mouse-ear Chickweed*. *C. glomeratum*, Thuill. Fl. Par. ed. 2, 225 (1799).

Top. Bot. 79. Syme, E. B. ii. 82, t. 221. Nyman, 108. Fl. Oxf. 51. Native. Agrestal, &c. Walls, waste places, fields, heaths, grassy paths in woods, &c. Common and generally distributed. A. or B. April-September.

First record. *C. viscosum*, *Mavor's Agr. Berks*, 1809.

Var. **APETALUM** (Dumort, Comm. Bot. 47, 1822, as a species), is not unfrequent in the ridings of dampish woods as in Wytham, Powder Hill Copse, Pusey, Bagley, Wittenham, Oare Wood, Wickham, Bucklebury, Fence Wood, Hampstead Marshall, Aldermaston, Mortimer, Ascot, Windsor Great Park, &c.

A form with very broad leaves and compact flower-heads also occurs.

C. viscosum is probably absent from a considerable area of the chalk downs; it occurs in all the bordering counties.

C. vulgatum, Linn. Fl. Suec. ii. 158 and Sp. Pl. ed. 2, 627 (1762). *Narrow-leaved Mouse-ear Chickweed*.

C. triviale, Link, Enum. Hort. Berol. i. 433 (1821).

Top. Bot. 80. Syme, E. B. ii. 83, t. 222. Nyman, 108. Fl. Oxf. 51. Native. Pascual. Meadows, river-banks, stone walls, grassy chalk downs and heaths. A common and widely distributed species, occurring on the banks of the Thames near Old Windsor, and ascending to Walbury Camp, 959 feet above sea-level. B. or P. Jan. 26-October.

First record. *C. vulgatum*, *Mavor's Agr. Berks*, 1809.

In Mr. Britten's *Contributions* Dr. Trimen records 'a peculiar form on the downs near Wantage, nearly *C. holosteoides*, Fr., but not quite.' The specimen is preserved in *Herb. Brit. Mus.*, but I see no resemblance to *C. holosteoides*. The petals of *C. vulgatum* vary a good deal in length. One form, which is found on walls of the Coralline Oolite about

Cumnor (see *Rep. of Bot. Exch. Club*, 1888), on heath ground near Frilford, and on the White Horse Hill, has the petals of considerable length (*form. macropetala*); it forms a connecting link to *C. vulgatum*, var. *alpinum*.

C. vulgatum occurs in all the bordering counties.

C. arvense, Linn. Sp. Pl. 438 (1753). *Field Chickweed.*

Caryophyllus arvensis hirsutus, flore majore, C. B. Pin. 210.

Top. Bot. 82. Syme, E. B. ii. 89, t. 225. Baxt. t. 286. Nyman, 108. Fl. Oxf. 51.

Native. Glareal. Sandy and calcareous fields, dry banks, and heaths.

Local. P. April-July. First record. *C. arvense*. Corn Mouse-ear. Pretty common, *Mavor's Agr. Berks*, 1809.

1. **Isis**. Eynsham Road, *Baxter MSS.* 1812. Near Oxford, *Bree in Pert. Midl. Flora*, 1821. Cumnor. Near Besilsleigh.

2. **Ock**. Roadside near Radley, *Whitwell*. Wallingford. Milton. Tubney, *Boswell*, in *Fl. Oxf.* Sunningwell and Frilford, *Dyer*. Cornfields near Tubney Wood, *Lawson*. Wantage, *Trimen*. Marcham, *Walker*. Lockinge. Uffington. Abingdon Racecourse. Besilsleigh. Shippon. Didcot, near the Station. Blewburton Camp. Abundant on King Standing Hill. Blewbury. Abundant along the banks of the Ridgeway between Uffington and Letcombe Castle. Near Pusey. On Cherbury Camp as a narrow-leaved form.

3. **Pang**. Streatley, *Pamplin*. Compton. Ilsley. Unwell Downs. Abundant in a field recently brought into cultivation on the downs near Moulsoford; the field was quite white with the flowers in the middle of April, 1894. Near Basildon. Yattendon.

4. **Kenet**. Abundant from Wantage to Weston, by the Sheffords. West Ilsley.

5. **Loddon**. Wellington College, *Penny*. Finchampstead. Wargrave. Bracknell.

Var. *GLABRESCENS*, Mert. and Koch, occurs near Carswell, *Miss M. Niven*, and near Bracknell.

C. arvense, which is fond of dry exposed sunny places, occurs in all the bordering counties.

STELLARIA, Linn. Gen. n. 504 (*Alsine*, Tournefort, t. 126).

S. aquatica, Scop. Fl. Carn. ed. 2, i. 319 (1772). *Marsh Mouse-ear Chickweed.*

Cerastium aquaticum, Linn. Sp. Pl. 439 (1753). *Malachium aquaticum*, Fries, Fl. Hal. 77 (1817), and of Fl. Oxf. *Myosoton aquaticum*, Moench, Meth. 225 (1794). *Alsine aquatica*, leges.

Top. Bot. 79. Syme, E. B. ii. 91, t. 227. Nyman, 107. Fl. Oxf. 50.

Native. Paludal. Ditches, river-banks, wet places, damp spinneys, &c. Locally common and widely distributed, preferring partially shaded places. P. May–October.

First record. Banks of Thames, near Old Windsor, Berks, July, 1802, *Winch MSS.* Included under the erroneous name of *S. nemorum*, by Dr. Noehden, in *Mavor's Agr. Berks*, 1809.

1. *Isia*. Wytham. Appleton. Bablock Hythe. Buscot. Lechlade. Skinner's Weir.
2. *Ock*. South Hinksey, *Baxter*, 1827, in *Herb. Oxf.* Thames banks, *Lawson*. Marcham. Abingdon. Radley. Shippon. Kennington. Wittenham. Cholsey.
3. *Pang*. Pangbourn. Bradfield. Moultsford. Tidmarsh.
4. *Kennet*. Brimpton Farm, *Russell's Cat.* Near Reading, *Carroll*, in *Herb. Brit. Mus.* Catmore, *Miss Humphrey*. Southcote. Beenham. Theale. Padworth. Aldermaston. Kintbury. Mortimer.
5. *Loddon*. Near Old Windsor, *Winch*. Wet places by the river [at Marlow], *Mill*. Near Henley, *Stanton*. Blackwater, *Penny* and *Miss C. E. Palmer*. Withy eyots at Sonning, *Tufnail*. Coleman's Moor. Ascot. Bray. Cookham. Wargrave. Aston. Swallowfield.

Stellaria aquatica, which I kept as a separate genus, *Malachium*, in the *Flora of Oxfordshire*, is, I think, worthy of that position, but the older name is *Myosoton* of Moench. It is found in all the bordering counties.

• *S. media*, Cyrillo, Char. Comm. 36 (1784), not of Sibth. Common Chickweed.

Alsine media, Linn. Sp. Pl. 272 (1753), and of C. B. Pin. 250 (1623).

Top. Bot. 78. Syme, E. B. ii. 93, t. 229. Nyman, III. Fl. Oxf. 52.

Native. Agrestal, &c. Common almost everywhere, but less frequent on the chalk downs. A. Flowers all the year. This species and *Poa annua* are our commonest plants.

First record. *Alsine media*. A troublesome weed. *Mavor's Agr. Berks*, 1809.

Var. MAJOR, Koch, Syn. Fl. Germ. 118 (1837), (*S. neglecta*, Weihe, in Bluff. and Fingerh. Comp. Fl. Germ. i. 560), occurs not unfrequently in moist rich soil, as at Kennington, Abingdon, Pangbourn, Hermitage, Aldermaston, Greenham, Hampstead Marshall, Maidenhead, Windsor Park, &c. In this form the stamens are usually less in number.

Var. BORAEANA (Jord. Pugill. 33 (1852) as a species). On dry stone walls a small apetalous form, which has usually much yellower foliage and the stamens often reduced to three in number, is not unfrequent, as at South Hinksey, Wytham, Cumnor, Marcham, Kennington, Abingdon, Shrivenham, Blewbury, Streatley, Pangbourn, Hungerford, Ruscombe, Sonning, Early, Cookham, &c.

A form with short petals (var. *BRACHYPETALA*, Baker, in Bot. Exch. Club, 91 (1861), also occurs.

S. media, which is a very variable plant, is found abundantly in all the bordering counties.

S. umbrosa, Opiz and Rupr. in Opiz Saznam. 93 (1852).

S. Elisabethae, Schultz, Arch. Fl. 302. *S. media*, var. *umbrosa*, auct. *Alsine umbrosa*, mihi.

Top. Bot. 78. Syme, E. B. ii. 95. Nyman, III. Fl. Oxf. 53.

Native. Septal. Shady hedgebanks on a sandy soil. Local and rare.

A. or B. June-September.

First found in Berkshire by the author in 1892. See *Rep. of Bot. Exch. Club*, 357, 1892.

4. **Kennet**. In a shady hedge-bank near Aldermaston.

5. **Loddon**. Near Arborfield.

The seeds of the Arborfield specimens agree well with the description of those of the true plant, but the pedicels are slightly hairy.

S. umbrosa is only recorded for Hampshire, Surrey, and Wiltshire of the bordering counties.

S. holostea, Linn. Sp. Pl. 422 (1753). *Greater Stitchwort*, *All Bones*.

Caryophyllus arvensis glaber, flore majore, C. B. Pin. 210. *Alsine holostea*, mihi.

Top. Bot. 78. Syme, E. B. ii. 96, t. 230. Nyman, III. Fl. Oxf. 53.

Native. Septal, sylvestral. Hedges, wood-borders, spinneys, common, and generally distributed. A great adornment of our hedgerows in spring. P. April-June.

First record. *Stichwort*. It grows in Merley Wood and upon Hincksey Hill by ye hedges, *MS. in Lyte's Herball*, 1660. *S. holostea*, frequent, *Mavor's Agr. Berks*, 1809. With *Uredo antherarum*, Grev. in Bagley Wood, *Baxt. Phaen. Bot.* n. 154.

Especially abundant on the margins of some of the woods on the Chalk. A plant with laciniate petals was noticed between Arborfield and Finchampstead (*forma laciniata*). I have seen it with purplish foliage on Stubbing's Heath.

S. holostea occurs in all the bordering counties. Linnaeus spelt the specific name with a capital letter, but Lobelius wrote *Holostium Ruellii*.

S. palustris, Ehrh. Beitr. v. 176 (1790), (nom. nud.), Retz. Fl. Scand. ed. 2, 106 (1795).

S. glauca, With. Bot. Arr. ed. 3, iii. 420 (1796). *S. media*, Sibth. Fl. Oxon. 141 (not of Cyr.). *Alsine palustris*, mihi, not of Kellogg.

Top. Bot. 78. Syme, E. B. ii. 97, t. 231. Nyman, III. Fl. Oxf. 53.

Native. Uliginal, paludal. Bogs, marshes, wet ditch-sides and

meadows, preferring the company of other herbage. Local. P. April-July.

First record. *Caryophyllus holosteus arvensis medius* . . . invenit D. Sherrard [Sherard] prope Oxoniam, Mr. Doody in *Ray Syn. App.* 245, 1690.

1. **Isis.** Wytham meadows.
2. **Ock.** Near Oxford, *Sherard*, l. c. Devil's Back Bone, 1827, *Baxter*. Ferry Hinksey. Radley. Between Ifley and Sandford. Near Abingdon very fine.
3. **Pang.** Opposite Caversham in ditches near the Thames, *F. W. Stansfield*. Near Moulsham.
4. **Kennet.** Thatcham, *Russell's Cat.* Newbury, *Bicheno* in *Winch MSS.* Kintbury, *Reeks* in *Britt. Contr.*
5. **Loddon.** *S. glauca*. Moist meadows near Eton, *Gotobed*, in *Bot. Guide*, 1805. (Probably in Bucks.) Ditches by the Thames, Bisham, Medmenham, and Cookham, *Britt. Contr.* Near Wellington College, *Penny*. Meadows about Wargrave, *Stanton*. Sonning meadows, *Tufnail*. Coleman's Moor. Near Loddon Bridge. New Bridge on the Blackwater. Near Ruscombe.

Var. **PARVIFLORA** (Kl. and Richt.) under *S. glauca*, see Reichb. Ic. Fl. Germ. v. f. 4909 b, has been seen near Abingdon.

S. palustris, which is confined in Berkshire to low-lying marshy ground, is found in all the neighbouring counties.

S. graminea, Linn. Sp. Pl. 422, a (1753). *Heath Stitchwort*. *Lesser Stitchwort*. *Alsine graminea*, Britton.

Top. Bot. 79. Syme, E. B. ii. 98, t. 232. Nyman, 112. Fl. Oxf. 54. Native. Pascual, ericetal. Pastures, heaths on sandy or gravelly soil. P. April-September.

First record. *S. graminea*, Dr. Noehden. Hedge-banks, &c. *Mavor's Agr. Berks*, 1809.

1. **Isis.** Buscot, *Bellamy*. Carswell, *Miss M. Niven*. Wytham. Near Faringdon. Pusey. Appleton.
2. **Ock.** Marcham, *Walker*. Cumnor Hurst, *Morrison*. Boar's Hill. Frilford. Uffington. Tubney. Didcot. Bagley. Wittenham.
3. **Pang.** Pangbourn. Cold Ash Common (a large-flowered form). Fence Wood. Bucklebury. Oare Common.
4. **Kennet.** Mortimer, *Tufnail*. Aldermaston. Hampstead Marshall. Greenham and Crookham Commons. Padworth. Ufton. Newbury Wash Common. Wickham Heath. Snelmore Common.
5. **Loddon.** Near Reading, *Ridley*, in *Herb. Brit. Mus.* Common about Park Place, *Stanton*. Marlow, *Mill*. Windsor, *Bolton King*. Farley Hill. Early Heath. Sonning Cutting. Loddon Bridge. Bearwood. Finchampstead. Near Wellington College. Risely. Bracknell. Ascot. Windsor Great Park. Stubbing's

Heath. Sandhurst College grounds. Winkfield. Wokingham, &c.

Although somewhat local in the Isis, Ock, and Pang districts, *Stellaria graminea* is abundant in the southern part of the Kennet and the western side of the Loddon district.

A form with lacinate petals (*f. laciniata*) has occurred near Long Moor, and one with very broad leaves has been seen on mud near Wytham.

The species is found in all the bordering counties.

S. uliginosa, Murray, Prod. Stirp. Gott. 55 (1770). *Bog Stitchwort*.

Larrea uliginosa, Reichb. Ic. Fl. Germ. et Helv. v. f. 3669. *Alsine uliginosa*, Britton, not of Villars.

Top. Bot. 79. Syme, E. B. ii. 99, t. 233. Nyman, t. 112. Fl. Oxf. t. 54. Native. Paludal. Wet places, especially on peaty soil. Locally common. P. April-August.

First record. *S. uliginosa*. Bog Stitchwort, Dr. Noehden, *Mavor's Agr. Berks*, 1809.

1. **Isis**. Appleton, *Walker*. Wytham. See *Fl. Oxf*.
2. **Ock**. Bagley Wood, *Baxter*, 1812, in *Herb. Oxf*. Coxwell, *Bellamy*. Between South Hinksey and Childswell Farm, *Baxter MS.*, 1831. Hen Wood. Yatcombe Copse. Frilford. Tubney. Wootton Heath.
3. **Pang**. Near Beedon, *W. M. Rogers*. Fence Wood. Cold Ash Common. Bucklebury Common. Hermitage. Oare Common.
4. **Kennet**. Greenham Common, *Rupert Jones*. Burghfield Heath. Mortimer. Padworth. Upton. Aldermaston. Pebble Hill, near Kintbury. Hampstead Marshall. Inkpen. Snelsmore Common. Wickham Heath.
5. **Loddon**. Wokingham, *Tufnail*. Crazy Hill. Warren Row, Stanton. Wellington College, *Penny*. Sunninghill. Virginia Water. Coleman's Moor. Bagshot Heath. Finchampstead. Long Moor. Near Bearwood. Early Heath. Hurst. Windsor Park. Cranbourn Park. Frogmore, &c.

The distribution of this species is somewhat similar to the foregoing, except that this is found in the more moist and shady places, while the former is found in the sunny and drier spots of the heathland.

Stellaria uliginosa is found in all the bordering counties.

Obs. Strictly speaking, the generic name *Alsine* takes precedence of *Stellaria*, as it comes first in the *Species Plantarum*, and has been adopted in preference in the American check-list.

ARENARIA, Linn. Gen. n. 505 (Ruppius).

A. tenuifolia, Linn. Sp. Pl. 424 (1753). *Fine-leaved Chickweed*.

Alsine tenuifolia (J. Bauhin, Hist. iii. 364), Crantz, Inst. ii. 407 (1766), and of *Fl. Oxf*.

Top. Bot. 76. Syme, E. B. ii. 112, t. 243. Nyman, 117. Fl. Oxf. 55. Native. Glareal, rupestral. Dry sunny places on stony ground and wall-tops. Local and rare. A. May-July.

First record. Streatley, Mr. H. C. Watson, in *Britt. Contr.* 1871.

2. Ock. Cothill, on the village walls. Radley, on the ground near the Station.

3. Pang. Streatley, Watson, l. c. Moulsoford, on walls in village.

5. Loddon. On walls near Ruscombe.

A. tenuifolia is found in all the bordering counties.

The genus *Arenaria*, as defined in the *Genera Plantarum* of Bentham and Hooker, is too unwieldy, and I should prefer to follow Nyman and other continental authorities in dividing it.

A. trinervia, Linn. Sp. Pl. 423 (1753). *Plantain-leaved Chickweed*.

A. trinervis, Sm. Fl. Brit. ii. 478. *Moehringia trinervia*, Clairv. Man. 150 (1811). *Alsine Plantaginis folio*, J. Bauhin, Hist. iii. 364.

Top. Bot. 77. Syme, E. B. ii. 101, t. 234. Nyman, 112. Fl. Oxf. 55. Native. Sylvestral. Woods, shady hedgerows, thickets, &c. Generally distributed. A. April-June.

First record. *A. trinervia*, Dr. Noehden, *Mavor's Agr. Berks*, 1809. This occurs in shaded places, especially in woodland situations in all the districts, and is a fairly common plant. I have seen it in Sparsholt Enclosure on the Ridgeway, which is over 600 feet above the sea.

A. trinervia, the petals of which vary in length, occurs in all the bordering counties.

Nyman and other authorities place it in the genus *Moehringia*.

A. serpyllifolia, Linn. Sp. Pl. 423 (1753). *Thyme-leaved Sandwort, Least Chickweed*.

Alsine minima, Ger. Em. 612. *A. sphaerocarpa*, Tenore, Syll. Fl. Neap. iv. 222.

Top. Bot. 76. Syme, E. B. ii. 102, t. 235. Nyman, 115. Fl. Oxf. 54. Native. Agrestal, glareal, rupestral. Walls, cornfields, sandy heaths, &c. Generally distributed and a very common plant. A. March-October.

First recorded in *Russell's Cat.* 1839, without special locality. Also given as frequent on walls, Marlow, by Mr. G. G. Mill in *Phyt.* i. 984, 1843.

A form which occurs on the dry heaths of the southern part of the county is more glandular, but it is not quite identical with var. *glutinosa*, Koch, Syn. Fl. Germ. 117 (1837).

A. serpyllifolia, which ascends to the top of Walbury Camp, 959 feet above the sea, occurs in all the bordering counties.

A. leptoclados, Guss. Fl. Sicil. Syn. ii. 284 (1845), not of Boissier.

A. serpyllifolia, var. *leptoclados*, Fl. Oxf. et auct. var.

Comp. Cyb. Br. 491. Reichb. Ic. Fl. Germ. et Helv. v. f. 4941, b. Nyman, 115. Fl. Oxf. 54.

Native. Rupestral, &c. Walls, dry sandy fields, &c. Locally common and widely distributed. A. June–October.

First recorded by Messrs. H. Boswell and J. C. Melvill in *Britt. Contr.* 1871.

1. **Isis.** Wytham. Near Besilsleigh. Buscot. Faringdon. Eaton Stibble. Appleton.
 2. **Ock.** Hinksey. Marcham. *Fl. Oxf.* Wootton. Didcot. Besilsleigh. Charney Basset. Garford. Kingston Bagpuze. Tubney. Sunningwell. Abingdon.
 3. **Pang.** Westbrook. Hampstead Norris, *W. M. Rogers.* Pangbourn. Bradfield. Yattendon. Hermitage. Frilsham.
 4. **Kennet.** Beedon, *W. M. Rogers.* Newbury. Aldermaston. Hungerford. Kintbury. Hodecott. Lambourn. Shefford. Mortimer. Sulhampstead.
 5. **Loddon.** Hurst, *Melvill.* Sonning. Ruscombe. Wokingham. Bisham. Cookham. Ascot. Finchampstead.
- A. leptoclados*, which is considered to be a distinct species by M. F. Crépin and Mr. Williams, is found in all the bordering counties.

SAGINA, Linn. Gen. n. 162 (*Alsinella*, Dill. Gen. 6).

S. apetala, Harduino, Sp. Animadv. 2, t. 8 (1763).

Sacifraga Anglica annua, *Alsine folia*, Plot, Nat. Hist. Ox. (1677).

Top. Bot. 70. Syme, E. B. ii. 118, t. 246. Nyman, 121. Fl. Oxf. 56.

Native. Glareal, rupestral. Walls and dry sunny places, not uncommon. A. May–August.

First recorded in *Russell's Cat.* 1839, but without locality, and *S. ciliata* not given.

1. **Isis.** Buckland, *Boswell in Fl. Oxf.* Wytham. Faringdon.
2. **Ock.** Marcham. Abingdon. Shippon. Uffington. Wantage. Blewbury. Didcot. Kennington. Sutton Courtney. Garford.
3. **Pang.** Streatley, *Pamplin.* Moulsoford. Bradfield. Basildon. Compton.
4. **Kennet.** Beedon Churchyard, *W. M. Rogers.* Lambourn. Burghfield. Mortimer. Ufton. Kintbury. Southcote. Hungerford.
5. **Loddon.** Finchampstead, *Penny.* Windsor, *Bolton King.* Bagshot Heath, *Watson.* Ruscombe. Wargrave. Arborfield. Wokingham. Brickwork by railway between Ascot and Bracknell. Old Windsor.

Var. **PROSTRATA**, S. Gibs. Phyt. (1842) 178. This has been seen at Southcote, Bagshot Heath, Wantage, roadside near Bagley Wood, &c.

The var. **GLANDULOSA**, Schultz, Grund. Phytost. Pfl. 21, has been seen at Wantage.

Var. *laevis*, S. Gibs. l. c., a smooth upright form, which is probably the var. *glabra*, Schultz, Bot. Zeit. Apr. (1849), 269, has also been seen. *S. apetala* occurs in all the bordering counties.

S. ciliata, Fries, in Liljbl. Svensk. Fl. ed. 3, 713 (1816).

Top. Bot. 70. Syme, E. B. ii. 119, t. 247. Nyman, 121. Fl. Oxf. 56. Native. Ericetal. Dry sandy fields, heaths, roadsides, &c. Locally common, but rare in the north of the county. A. May–August. First record. *S. ciliata*. Bagshot Heath, Mr. H. C. Watson in Brit. Contr. 1871.

2. Ock. Boar's Hill. Frilford. Radley. Besilsleigh.

3. Pang. Cold Ash Common. Bucklebury. Oare Common.

4. Kennet. Mortimer. Inkpen. Greenham Common. Wickham Heath. Snelsmore. Padworth. Ufton. Twyford.

5. Loddon. Bagshot Heath, Watson, l. c. Ambarrow. Wellington College Grounds. Windsor Park. Coleman's Moor. Sonning Cutting. Long Moor. Bracknell. Sandhurst.

S. ciliata is recorded for all the bordering counties.

S. procumbens, Linn. Sp. Pl. 128 (1753). Pearlwort.

Top. Bot. 71. Syme, E. B. ii. 120, t. 248. Nyman, 121. Baxt. t. 199. Fl. Oxf. 57.

Native. Viatical, &c. Moist places, fields, heaths, &c. Generally distributed, but not very common. Probably absent from a considerable area of meadow land, from the chalk downs, and from portions of arable land. P. April–September.

First record. *S. procumbens*. Chickweed breakstone, Dr. Noehden, Mavor's Agr. Berks, 1809.

The glabrous plant is the more frequent form.

Var. *spinosa*, S. Gibson, in Phyt. (1842), 179, has been noticed at Marcham. In this variety the leaves are ciliate, but it merges gradually into the ordinary form.

S. procumbens occurs in all the bordering counties.

S. subulata, Presl, Fl. Sic. 158 (1826).

S. procumbens, var. b., Linn. Sp. Pl. 185. *Spergula subulata*, Swartz, Stockh. Trans. (1789). *S. saginoides*, Curt. Fl. Lond. iv. t. 35.

Top. Bot. 71. Syme, E. B. ii. 122, t. 250. Nyman, 120. Fl. Oxf. 56. Native. Ericetal. Heaths. Very local. A. or P. June–August.

First record. *Spergula subulata*. Ditch-banks near Bray [Mr. J. Woods]. Newton. Newbury [Mr. Bicheño], Winch Add. in New Bot. Guide, 1835.

4. Kennet. Newton, Newbury, Bicheno. Burghfield Heath, near the Three Firs.

5. Loddon. Near Bray, Woods. Bagshot Heath, Watson. Near

Wellington College Station. Ambarrow. Near Bracknell. Whitemoor Bog, by the side of the railway. Long Moor. Near Sandhurst College. Abundant in Windsor Park near the gravel-pits. Very abundant by the roadside between Sandhurst Military College and Swinley. In Swinley woods. By the railway between Ascot and Bracknell; in profuse flower May, 1895. A noticeable feature by the bare roadsides in the heathy district when the flowers are open.

Sagina subulata is not recorded for Oxfordshire or East Gloucestershire, and is only recorded from Iver Heath in the county of Bucks in the *Botanist's Guide*, 1805, but is on record for Surrey, Hants, and Wiltshire.

S. nodosa, Fenzl. Verb. Alsineen, t. ad p. 18 (1835) (1833, Pritzel). *Knotted Spurrey*.

Spergula nodosa, Linn. Sp. Pl. 440. *Alsine nodosa Germanica*, C. B. Pin. 251.

Top. Bot. 72. Syme, E. B. ii. 125, t. 251. Nyman, 120. Fl. Oxf. 55. Native. Paludal. Damp heaths, meadows, and commons. Local and rather rare. P. July-August.

First record. *Spergula nodosa*, Mr. Bicheno, *Mavor's Agr. Berks*, 1809.

2. Ock. Wootton Heath, *Boswell*. Between South Hinksey and Bagley Wood, *Baxter*, 1831. Boar's Hill, *Garnsey*. Tubney, *Walker*. On the downs near Upton, *Miss Fry*, 1895. Marcham.

4. Kennet. Bagnor Marsh, *Russell's Cat.* 1839. Peat pits about Newbury, *Bicheno*, 1809. (In the same place, 1894.) Kintbury, Elcot, *Reeks*, in *Britt. Contr.*

5. Loddon. Winter Hill and Cookham Down, *Mill*.

All the Berkshire specimens which I have seen have been glabrous. The variety *glandulosa* (Besser, Prim. Fl. Gal. ex Nym. Consp. 120, as a species) is usually a plant of maritime localities.

Spergula nodosa, though perhaps not equally grateful to animals as the *Spergula arvensis*, naturally overruns the peat pits on the Kennet, and therefore might be sown with certain effect in such situations. *Mavor's Agric. Berks*, 292.

Sagina nodosa, which is very local indeed in Berkshire, is recorded for all the bordering counties.

SPERGULA, Linn. Gen. n. 519 (Dill. Gen. 7).

S. arvensis, Linn. Sp. Pl. 440 (1753), and of Herb. Linn. *Corn Spurrey*.

S. arvensis, L. var. *vulgaris*, Koch, Syn. Fl. Germ. 121 (1837). *S. vulgaris*, Boenn. Prod. Fl. Monast. 135 (1834). *Saginae Spergula*, Ger. Em. 1125.

Top. Bot. 73. Syme, E. B. ii. 127, t. 253; but the seeds are the seeds of *S. sativa*. Nyman, 121. Curt. Fl. Lond. v. t. 31. Fl. Oxf. 57.

Native. Agrestal. Cornfields chiefly on sandy soil. Locally abundant. A. February–September.

First record. Corn Spurrey, seeds nutritious to birds. Horses, sheep, &c., eat the plant, which deserves more attention. Though this plant is not yet cultivated in Berkshire it grows abundantly in the county, and seed might be collected in any quantity.
Mavor's Agr. Berks, 292, 1809.

The description in Baxter's *Phæn. Botany* refers to this species, not to *S. sativa*.

1. **Isis.** Near Faringdon. Coleshill. Longworth. Appleton. Tubney, *Walker*.
2. **Ock.** Wootton, *Boswell*. Frilford. Boar's Hill. Near Coxwell. Cothill. Culham. Wittenham.
3. **Pang.** Tilehurst. Near Streatley. Bucklebury. Englefield. Hermitage.
4. **Kennet.** Brimpton. Newbury. Greenham. Padworth. Oare. Near Riever Wood. Enborne. Theale. Near Reading. Woolhampton. Near Chieveley. Inkpen.
5. **Loddon.** Sonning. Wokingham. Ambarrow. Farley Hill. Ascot. Sunninghill. Near Virginia Water. Wargrave. Near Maidenhead. Broadmoor. Sandhurst. Coleman's Moor. Twyford. Finchampstead. Sunningdale (var. *MAXIMA*, Weihe, in Boenn. *Prod. Fl. Monast.* 136, as a species).

S. arvensis is recorded for all the bordering counties.

S. sativa, Boenn. *Prod. Fl. Monast.* 135 (1824). *Corn Spurrey*.

S. pentandra, Sm. E. B. t. 1536 (not of Linnaeus). *S. arvensis*, var. *sativa*, Koch, *Syn. Fl. Germ.* 110 (1837). Syme, E. B. ii. 127, t. 252; but the seeds belong to *S. arvensis*.

Native. Agrestal. Sandy fields. Very local. A. June–August.

First found in Berkshire by the author in 1890. See *Journ. Bot.* (1891), 173–5.

1. **Isis.** Coleshill, *Bellamy*.
2. **Ock.** Boar's Hill, in sandy field growing with *Silene anglica*.
4. **Kennet.** Mortimer, *Tufnail*. Brimpton.

The chief characters which distinguish this plant from the foregoing are derived from the seed, which in this is smooth and bordered by a narrow wing, in *S. arvensis* is covered with small club-shaped papillae. Since these characters are not altered by cultivation, and the two forms have a different distribution, I have followed Boenninghausen, Lecoq, &c., in giving them specific rank; the relationship between them appears to be somewhat similar to that borne by *Sparganium erectum* to *S. neglectum*, and by *Stellaria media* to *S. umbrosa*.

For further information on the two species of *Spergula* the reader

is referred to a paper by Mr. Geo. Nicholson in the *Journ. of Bot.* for 1880, 16-19, and to one by the author which appeared in the same *Journal* for 1891, 173-175. The flowers of *S. sativa* have a valerianaceous odour which I have not noticed in *S. vulgaris*, but I by no means assert that it is not present in the latter.

S. sativa occurs in the counties of Oxford, Wilts, Hants, and Surrey.

BUDA, Adans. Fam. ii. 507 (1763) (*Tissa*, Adans. l. c.).

B. rubra, Dumort, Fl. Belg. 110 (1827). *Red Sandwort, Purple Spurrey, Mavor.*

Arenaria rubra, var. *campestris*, Linn. Sp. Pl. 423. *Spergularia rubra*, Pers. Syn. i. 504 (1805). *Lepigonum rubrum*, Wahl. Fl. Gothob. 45 (1820). *Tissa campestris*, Prantl. *Spergularia campestris*, Asch. Fl. Brand. 94, not of Willk. and Lange. *Alsine campestris*, Crantz, Inst. ii. 407. *Spergula purpurea*, J. Bauhin, Hist. iii. 722.

Top. Bot. 76. Syme, E. B. ii. 129, t. 254. Nyman, 122. Fl. Oxf. 57. Native. Glareal. Sandy heaths and cultivated fields. Local. A. June-September.

First record. *Arenaria rubra*, Dr. Noehden, *Mavor's Agr. Berks*, 1809.

1. **Isis**. Wytham.

2. **Ock**. Bagley Wood, *Baxter, MS.*, 1812. Wootton. Abingdon, *Boswell*. Powder Copse Hill, *Sister Jane Frances*. Bayworth, *Thurland*. Tubney, *Walker*. Marcham. Frilford. Cothill.

3. **Pang**. Streatley, *Pamplin*. Tilehurst, *Tufnail*. Bucklebury. Frilsham. Hawkridge Wood. Cold Ash Common. Fields near Unwell Wood. Curridge.

4. **Kennet**. Greenham Common, *Stubbs, in Britt. Contr.* Mortimer. Padworth. Ufton. Aldermaston. Snelsmore. Wickham Heath. With a small form (var. *brevifolia* = *Arenaria rubra*, var. *brevifolia*, Gibson, Phyt. (1843) 218).

5. **Loddon**. Wargrave, *Melvill*. Wellington College Grounds, *Penny*. Near Henley, *Mr. Stanton*. Hurst, *Melvill MS.* Sonning. Finchampstead. Farley Hill. Bracknell. Coleman's Moor. Bearwood. Ascot. Sunningwell. Long Moor. Risely. Sandhurst College Grounds. Binfield. Winkfield.

B. rubra occurs in all the bordering counties.

B. marina, Dumort, Fl. Belg. 110 (1827).

Spergularia salina, Presl, Fl. Čech. 95 (1819). *Arenaria rubra*, var. *marina*, Linn. Sp. Pl. 423 (1753). *Tissa marina*, Britton.

Top. Bot. 74. Syme, E. B. ii. 129, t. 255. Nyman, 122.

Native. Marshy meadow by the side of a saline spring. Very local. P. May-July.

First found in Berkshire by the author in 1890.

2. **Ock**. In a meadow to the south of Marcham.

The locality for this plant is sufficiently interesting to be briefly described. It is a flat marshy meadow in the Kimmeridge Clay, on the northern side of which a small spring is thrown out at the junction of the Coralline Oolite with the Clay, and supplies water sufficiently laden with saline matter to be perceptibly salt to the taste. On the margins of this stream, which passes in a ditch through the meadow, and especially where they are bare of grass, *B. marina*, a maritime plant, occurs in considerable abundance. *Apium graveolens* is the most conspicuous plant by the stream and marks its course through the field. *Ranunculus sceleratus* and a thick fleshy-leaved form of *Atriplex* are also found, and the stream itself contains *Zannichellia pedunculata*, a form of *Ranunculus trichophyllus* and *Tolypella glomerata*. Among other plants in this meadow may be mentioned *Oenanthe Lachenalii*, *Carex distans*, *Juncus Gerardi*, *Sagina nodosa*, *Scirpus caricis*. In the deep ditch, into which this saline spring drains, there is a plentiful growth of *Scirpus maritimus*. The general aspect of the field rather recalls one of the meadows in the vicinity of the sea, which are to be seen on the eastern coast. The question arises as to *Buda marina* being a native plant of Berkshire. It has been suggested that this saline spring and maritime vegetation may be relics of a time when this part of the Thames Valley was tidal, and that these species may be descendants of a natural maritime flora. My own view is that the maritime species have been conveyed to the meadow by birds, and that their continued existence there is due to its saline nature. The forms of *Atriplex* and *Polygonum aviculare*, which resemble plants from maritime localities, have been probably evolved from ordinary inland forms. See *Rep. Bot. Exch. Club* (1892), 359-60, under *Corion medium*.

Buda marina is not recorded, so far as I am aware, from any inland locality in any of the counties bordering upon Berkshire.

The claims for the adoption of *Tissa* over *Buda* have been pointed out by Dr. Britton in *Journ. Bot.* (1890), 295-6.

[**POLYCARPON TETRAPHYLLUM**, Linn. Syst. ed. 10, 881 (1759). *Mollugo tetraphylla*, Linn. Sp. Pl. 89 (1753). Syme, E. B. ii. 133, t. 258.

Recorded by some unaccountable error by Mr. J. Lousley in Russell's *Newbury Catalogue* of 1839 from waste places at Hampstead Norris, East Ilsley, and by Chance Barn, Blewbury. It is a species not in the least degree likely to be found in Berkshire.]

PORTULACACEAE, DC., Théor. Élém. 246 (1819).

Juss. Gen. 312 (1789).

****Claytonia perfoliata**, Donn. Cat. Cant. 25 ex Willd. Sp. Pl. i. 1186. Alien. Syme, E. B. ii. 137, t. 260. Nyman, 254. Fl. Oxf. 124.

Miss M. Niven found it outside a garden near Faringdon in 1896. It is included in the *Wellington College List*, but from a locality which is at Yately in Hampshire; it is recorded also for Surrey.

MONTIA, Linn. Gen. 96 (Micheli, Nov. Pl. Gen. 17).**M. fontana**, Linn. Sp. Pl. 87 (1753). *Blinks, Water Chickweed.**Cameraria arvensis minor*, Dill. Cat. Giss. 46. *C. fontana*, Moench, Meth. 520.

Top. Bot. 173. Syme, E. B. ii. 136, t. 259. Nyman, 253. Baxt. t. 196. Fl. Oxf. 123.

Native. Uliginal, &c. Wet places on heathy ground. Locally common. Much scarcer in the north and central parts of the county. Common and generally distributed on the damper heathland of the south and west. A. or P. April–September.

First record. *Montia fontana*, *Small Water Chickweed*, Dr. Noehden, *Mavor's Agr. Berks*, 1809.

1. Isis. Wytham. Near Tubney.

2. Ock. Bagley Wood, *Baxter in Walk. Fl.* Powder Hill Copse, *Boswell*. Frilford.

3. Pang. Bucklebury Common. Bradfield. Hawkridge. Frilsham. Cold Ash Common. Oare Common.

4. Kennet. Near Aldern Bridge, *Weaver*. Wickham Heath. Greenham Common. Snelsmore Common. Mortimer. Aldermaston. Burghfield. Hampstead Marshall. Inkpen.5. Loddon. Near Park Place, *Stanton*. Spencer's Wood Common. Long Moor. Stubbing's Heath. Windsor Great Park. Bracknell. Easthampstead. Finchampstead. Bearwood. Early. Sandhurst. Warren Row, &c.

Var. **MINOR**. All. Fl. Ped. i. 79 (1785) is the usual form, and is the small plant found on heathlands. The var. **MAJOR**, All. l. c., is the larger plant which is found on Greenham Common, in Windsor Park, and in other places. Persoon subsequently in his *Synopsis*, i. 111 (1805), gave the names *erecta* and *repens* to the two varieties of *M. fontana*. Gmelin considered them to be species.

Montia occurs in all the bordering counties.**ELATINACEAE**, Lindl. Nat. Syst. ed. 2, 88 (1836).**ELATINE**, Linn. Gen. n. 451 (*Potamogethys*, Buxb.).**E. hexandra**, DC., Fl. Fr. 609 (1815) and Ic. Pl. Rar. i. 14, t. 43 (1808).*E. tripetala*, Sm. Eng. Fl. ii. 243, not of Schkuhr.

Cyb. Brit. i. 188, Berkshire. Top. Bot. 62. Syme, E. B. ii. 141, t. 262. Nyman, 123. Fl. Oxf. 46.

Native. Lacustral. Borders of ponds, very local and rare. A. July–August.

First record. *Elatine tripetala*, near Binfield, Mr. T. F. Forster in *Sm. Engl. Flora*, ii. 243, 1824. In vol. iv. 266 of the same work the

record was corrected, and the place of growth said to be Virginia Water. *The Philosoph. Mag.* for 1824, on p. 287, states that Mr. Forster finds it plentifully, not, we believe, 'near Binfield,' but on 'the Dam-head at the Cascade, Virginia Water.'

5. Loddon. *Elatine hexandra* still occurs in Virginia Water, near the Cascade, but this portion of the Lake is in Surrey; so far I have been unable to find it in the Berkshire part. Did it ever occur there? It occurs in a pond at Sandhurst in both Surrey and Berkshire, and also in another pond, but nearly choked with *Littorella*, near Wellington College.

Var. *sessiliflora*, mihi. The Sandhurst plant has the capsules sessile and the seeds slightly more curved than those in my Scotch specimens, and the whole plant is smaller. Instead of growing in water a foot or more deep as in Scotland, in Berkshire it appears limited to very shallow water and the sandy margin of the water; but perhaps the level of the water in the last two years may have been lower than is normally the case.

E. hexandra is found in Surrey and Hampshire.

E. *Hydropiper*, Linn. Sp. Pl. 367 (1753).

Top. Bot. 62. Syme, E. B. ii. 142, t. 263. Nyman, 123.

Native. Lacustral. Sandy margins of ponds. Excessively rare. A. July–August.

First discovered in Berkshire by the author in 1896.

5. Loddon. Very sparingly in a pond near Sandhurst.

E. Hydropiper is found in Surrey only of the counties bordering Berkshire, but will probably be found in Hampshire. The plant is very minute, and for many years it evaded me. The lower water this summer (1896) may perhaps have assisted my examination.

HYPERICACEAE, Lindl. Nat. Syst. ed. 2, 77 (1836).

HYPERICUM, Linn. Gen. n. 808 (Tournefort, t. 131).

H. *Androsaemum*, Linn. Sp. Pl. 784 (1753). *Tutsan*, Park leaves.

Androsaemum vulgare, Park. 575 (1646). *A. officinale*, All. Fl. Ped. ii. 147.

Top. Bot. 88. Syme, E. B. ii. 143, t. 264. Baxt. t. 39. Nyman, 131. Fl. Oxf. 61.

Native. Sylvestral and septal. Woods and hedges. Local and rather rare. Probably absent from the north of the county. P. June–August.

First record. *Androsaemum*. In my orchard at Bradfield, *E. Ashmole's MS.* in [How's] *Phyt. Brit.* in Bodleian Library about 1654.

3. Pang. Bennett's Wood, Streatley, *Boswell*. Ilaley. Hampstead Norris Wood, *Lousley in Hewett's Hist.* Tidmarsh, *Newbould*. Bradfield, *Ashmole*. Unwell Wood, *Sister Jane Frances*.
4. Kennet. About Crookham, *Russell's Cat.* 1839 (not Cookham as given in *Baxt. Phaen. Bot.*) and cited in *Britt. Contr.* West Woodhay, *Reeks in Britt. Contr.* Mortimer, thickets near the Gamekeeper's house, *Tufnail*. Brimpton Wood.
5. Loddon. At the top of Bisham Wood, and in moist woods generally, *Mill*, 1843. Park Place, Rose Hill, *Stanton*. Billingbear Park, *Penny*. Bowsey Hill.

Hypericum Androsaemum is recorded from all the bordering counties.

***H. CALYCINUM**, Linn. *Mantissa*, i. 106 (1767). *Rose of Sharon*.

Comp. Cyb. Br. 494. Syme, E. B. ii. 147, t. 267. Nyman, 131. Fl. Oxf. 61.

Alien. Hedges, shrubberies, plantations. P. June-October.

First record. Near Reading, *Dr. Daubeny* in *Herb. Oxf.* about 1840.

1. *Isis*. Buckland, *Boswell*. Evidently introduced.

2. *Ook*. Lockinge, planted by Lord Wantage, but in some places now apparently naturalized.

3. *Pang*. Sulham woods, *Tufnail*. Escape near Yattendon House.

4. *Kennet*. Near Newbury, *Weaver*. Padworth.

5. *Loddon*. Very abundant in Park Place, where the rabbits do not touch it, *Stanton*. Windsor Park.

H. calycinum, which was introduced as long ago as 1676 by Sir G. Wheeler, from Eastern Europe, is more or less naturalized in all the bordering counties.

****H. HIRCINUM**, Linn. Sp. Pl. 784 (1753).

Androsaemum foetidum, Spach, in Ann. Sc. Nat. 2nd ser. v. 419. Syme,

E. B. ii. 146, t. 266. Nyman, 131. Comp. Cyb. Br. 494.

Alien. Naturalized in the grounds of Southcote House near Reading.

H. perforatum, Linn. Sp. Pl. 785 (1753). *St. John's Wort*.

Top. Bot. 88. Syme, E. B. ii. 148, t. 268. Nyman, 133. Baxt. t. 80. Fl. Oxf. 64.

Native. Septal, &c. Open woods, hedges, bushy places on heaths, waysides, &c., preferring sunny situations. Very common in some localities and with a general distribution, although less frequent on the clay soils of the county. P. June-September.

First record. Sonning, *Mr. S. Rudge*, 1800, *Herb. Brit. Mus.* *Hypericum perforatum*, *Dr. Noehden, Mavor's Agr. Berks*, 1809.

H. perforatum is a rather variable plant, but it is chiefly found in two marked forms in Berkshire. The type is taken to be the tall plant with broad leaves which is more frequently found in the north of the county.

Var. *ANGUSTIFOLIUM*, DC., Fl. Fr. Suppl. 630, occurs on the drier heaths and chalk downs of the central and southern parts of the county; it is a smaller plant with narrower leaves, and was first recorded for Berkshire by the author from Unwell Wood in *Rep. of*

Bot. Rec. Club, 1881. This var. was found at Wellington College in a very dwarfed condition by the *Rev. C. W. Penny*. I have seen the plant there; it has something of the look of *H. linearifolium*, Vahl, *Symb. i.* 65. The form *H. lineolatum*, Jord. in Boreau, *Flore du Centre Fr.*, ed. 3, ii. 123, in which the black glands on the petals coalesce into longitudinal bands, is also found, but both this and the var. *angustifolium* appear to merge into the ordinary form. It may be stated that specimens of the narrow-leaved form retained their character in cultivation¹. A very large form with very broad leaves, which are of a darker colour, occurs in the Rifle Butts valley near South Hinksey. This plant requires further study; it is not unlikely a hybrid of *H. perforatum* with *H. acutum*.

H. perforatum is found in all the bordering counties.

H. quadrangulum, Linn. *Sp. Pl.* 785 (1753), and *Index Kew*.

Ascyron, Dodoens, *Pempt.* *H. dubium*, Leers, *Fl. Herbon.* 165 (1775).

H. maculatum, Crantz, *Stirp. Austr. ii.* 98 (1768).

Top. Bot. 88. Syme, *E. B. ii.* 151, t. 269. Nyman, 133. *Fl. Oxf.* 63. Native. Inundatal. Wet ditches, brook-sides. Very local and rather rare. P. July–September.

First record. *H. quadrangulum*, the author in *The Flora of Oxfordshire*, 1886.

1. **Isis.** Wytham, very rare and not seen lately. Near Appleton on the road to Longworth.

2. **Ock.** Fields near Upton Station, *Sister Jane Frances*. Denchworth, Wait. Frilford Heath.

4. **Kenet.** By the Emborne Stream near Sandford Priory, and on the south side of Greenham Common, where it occurs not unfrequently. Near Kintbury.

5. **Loddon.** Included in the Wellington College List, 1894. Bulmarsh, Crazey Hill, *Tufnail*. Coleman's Moor, *Rev. A. H. Melvill*. *H. quadrangulum* is found in all the bordering counties.

H. acutum, Moench, *Meth.* 128 (1794). *St. Peter's Wort*.

H. quadratum, Stokes, *Mat. Med. iv.* 99 (1812). *H. tetraplerum*, Fries, *Nov. Fl. Suec.* 236. *H. quadrangulum*, Sm. *E. B. t.* 370 (not of Linn.). *H. quadrangulare*, Stokes, in *With. Bot. Arr. ed. 2*, 813 (1787).

Top. Bot. 88. Syme, *E. B. ii.* 152, t. 270. Nyman, 133. *Fl. Oxf.* 63. Native. Inundatal. Marshes, river-banks and brook-sides. Common and widely distributed. P. July–September.

First record. *Hypericum montanum quadrangulum flore majore*. Plentifully about Oxford, half-way betwixt Hinksey and Chilswell Farm in

¹ See *Phyt.* (1843) 427.

sepibus, *Dr. Dillenius' MSS.*, 1730. *H. quadrangulum*, Bagnor Marsh, *Russell's Cat.* 1839.

1. *Isis*. Pusey, *Boswell*. Buckland. Faringdon. Near Lechlade. Appleton. Wytham.
2. *Ock*. *H. quadrangulum*, Bagley, *Baxter MSS.*, 1829. Banks of Thames at Nuneham, *Grose*. Denchworth, *Wait*. Boar's Hill. South Hinksey. Frilford. Shippon. Wootton. Marcham. Wantage. Letcombe. Uffington. Cothill. Cumnor. Radley. Sutton Courtney. Wallingford. Garford. Lockinge.
3. *Pang*. Tilehurst, *Tufnail*. Pangbourn. Bradfield. Bucklebury. Tidmarsh.
4. *Kennet*. Bagnor Marsh, *H. quadrangulum*, *Russell's Cat.* Kintbury, *Hewett* (1834), *Herb. Brit. Mus.* Catmore, *Miss Humfrey*. Mortimer. Aldermaston. Hungerford. Lambourn. Theale. Near Reading.
5. *Loddon*. Blackwater, *Penny*. By the river at Marlow, *Mill*. Wargrave, *Melvill*. Frequent about Park Place, *Stanton*. Bagshot. Ambarrow. Swallowfield. Long Moor. Finchampstead. Coleman's Moor. Bracknell. Bisham. Sonning. Maidenhead. Bray. Windsor Park. Virginia Water, &c.

The plant is represented in the *Dillenian Herbarium* by a curious form, which, after consultation with a well-known critical botanist, I referred in the *Flora of Oxfordshire* to *H. quadrangulum*; the specimen is in bad condition, but I believe I am correct in my judgement in placing it under this species. The leaves are punctate, but the flowers are rather larger and the inflorescence more branched than in the usual form.

H. acutum is found in all the bordering counties.

The *Index Kewensis* gives Smith as the authority for the name *H. quadrangulare*, and cites E. B. t. 370, but it is there named *H. quadrangulum*; Smith, it is true, gives a reference for *H. quadrangulare* to Linnaeus' *Systema* and to Stokes' edition of *Withering's Bot. Arr.*

There is no doubt that the name *quadratum*, used by Stokes in his *Materia Medica*, 1812, is later than the name *acutum*, which is used by Moench in the *Methodus* of 1794: but the name *quadrangulare*, used by Sibthorp in the *Flora Oxon.* in the same year, and by Stokes in 1787, was probably meant for this species, which may indeed be the plant so named by Linnaeus in the *Systema*; it is a question therefore whether *H. acutum* should not bear the name *H. quadrangulare* of Stokes or Linnaeus.

H. humifusum, Linn. Sp. Pl. 785 (1753). *Creeping St. John's Wort*.

Hypericum supinum glabrum, Ger. Em. 541. *H. minus*, Gesner.

Top. Bot. 89. Syme, E. B. ii. 155, t. 271. Nyman, 134. Fl. Oxf. 64. Native. Ericetal. Heaths, dry pastures, on gravelly soil, sandy fields. Local in the Isis, Ock, the eastern part of the Pang, the northern portion of the Kennet district, and in the eastern

part of the Loddon district. Common on the heathlands of the Kennet and Loddon districts. P. June-July.

First record. *H. humifusum*, Mr. Bicheno, *Mavor's Agr. Berks*, 1809.

Bagley Wood, Mr. Baxter's MSS., 1812.

1. *Isis*. Wytham. Near Besilsleigh.
2. *Ock*. Bagley Wood, *Baxter*. Powder Hill Copse, *Boswell*. Boar's Hill, *Bellamy*. Cumnor Hurst, *Sister Jane Frances*. Tubney, *Walker*. Frilford. Besilsleigh.
3. *Pang*. Hawkridge. Bucklebury. Cold Ash Common. Oare Hill.
4. *Kennet*. Woodhay Common, *Russell's Cat*. Beedon, *W. M. Rogers*. Greenham, *Rupert Jones*. Greenham Common, *Weaver*. Mortimer Common. Aldermaston. Silchester. Snelsmore Common. Wickham Heath. Curridge Common. Hampstead Marshall. Burghfield, &c.
5. *Loddon*. Wellington College, *Penny*. Abundant on Warren Row, *Stanton*. Wargrave, *Melvill*. Ambarrow. Finchampstead. Long Moor. Farley Hill. Spencer's Wood Common. Early. Bearwood. Bracknell. Risely. Sandhurst. Windsor Park, &c.

Var. MAGNUM, Batard, Supp. Flore du Dep. de Maine et Loire, 45 (1812).

H. decumbens, Peterm., Fl. Lips. Excs. 565 (1838). This variety has glandular serrate sepals, which are more acute than in the type form; it occurs near Sandhurst, Bracknell, &c.

H. humifusum occurs in all the bordering counties.

H. pulchrum, Linn. Sp. Pl. 786 (1753), and of Tragus, 1532. *Upright St. John's Wort*.

Top. Bot. 90. Syme, E. B. ii. 157, t. 273. Nyman, 133. Fl. Oxf. 62. Native. Ericetal. Heaths, dry places in woods, locally common. It is a somewhat commoner plant than the preceding species. P. June-August.

First record. Sonning, Mr. S. Rudge, 1800, *Herb. Brit. Mus.* *H. pulchrum*, Dr. Noehden, *Mavor's Agr. Berks*, 1809.

2. *Ock*. Bagley Wood, *Baxter MS.*, 1812. Tubney, *Walker*. Cothill. Frilford. Besilsleigh. Boar's Hill.
3. *Pang*. East Ilsley, *Hewett*, 1838. Cold Ash Common. Fence Wood. Bucklebury Common. Heath Wood, near Bradfield. Ashampstead. Oarebury Hill.
4. *Kennet*. Greenham Common, *Weaver*. Newbury, *Russell's Cat*. Near Beedon, *W. M. Rogers*. Mortimer Common. Crookham Heath. Hampstead Marshall. Burghfield. Aldermaston. Silchester. Padworth. Wickham Heath. Snelsmore. Curridge Common. Inkpen Common. Sandleford. Newbury Wash. Wasing. Lower Bucklebury Common, &c.
5. *Loddon*. Sonning, *Rudge*. Early Common, *Tufnail*. Wellington College, *Penny*. Frequent near Marlow, *Mill*. Frequent about

Park Place, Stanton. Farley Hill. Ambarrow. Bagshot Heath. Sandhurst. Sunningdale. Bracknell. Risely. Finchampstead. Twyford. Bearwood. Stubbing's Heath. Windsor Park.

H. pulchrum is found in all the bordering counties.

H. hirsutum, Linn. Sp. Pl. 786 (1753). *Hairy St. John's Wort*.

Androsaemon hirsutum, C. B. Pin. 280.

Top. Bot. 91. Syme, E. B. ii. 157, t. 274. Nyman, 133. Fl. Oxf. 62. Native. Sylvestral. Woods, coppices, hedgerows, &c. Widely distributed and a very abundant plant in our woods, especially those on the Clay, Oolite, and Chalk. P. June–September.

First record. Sonning, *Mr. S. Rudge*, 1800, *Herb. Brit. Mus.* *H. hirsutum*, Dr. Noehden, *Mavor's Agr. Berks*, 1809.

H. hirsutum, which occurs in all the bordering counties, is too common and generally distributed to need an enumeration of localities. It occurs in almost every parish in Berkshire.

H. montanum, Linn. Fl. Suec. ed. 2, 266 (1755), Sp. Pl. ed. 2, 1105 (1762).

Top. Bot. 92. Syme, E. B. ii. 158, t. 275. Nyman, 132. Fl. Oxf. 62. Native. Sylvestral. Locally common, but almost confined to the woods on the Chalk. P. July–September.

First record. *Hypericum elegantissimum non ramosum folio lato*. In ye pits about the middle of Early field and in ye land on ye right hand side of Lodden bridge 3 miles from Reding, *MS. in Ray's Catalogus* about 1680.

2. Ock. Bagley Wood, *Boswell*, 1857. On the dry banks above Blewbury, *Lousley in Russell's Cat.*

3. Pang. Streatley, *Pamplin*. Ilsley. Knowl Hill. Sulham. Shorter's Hill, Pangbourn, *Tufnail*. Basildon. Near Tidmarsh.

5. Loddon. Early, *MS. in Ray*, l. c. Bisham Wood, Wargrave, *Britt. Contr.* Finchampstead woods, *Penny*. Remenham, Stanton. Very abundant in the grounds of Park Place. Plentiful in woods near Culham Court. Hurley. Between Stubbing's Heath and Ashley Hill.

H. montanum is recorded for all the bordering counties, but for Wiltshire recent corroboration of its occurrence is needed.

H. elodes, Grufb. in Linn. Amoen. Acad. iv. 105 (1754), and Huds. Fl. Angl. 292 (1762). *Marsh St. John's Wort*.

Elodes palustris, Spach. in Ann. Sc. Nat., Ser. 2, v. (1836) 172.

Top. Bot. 92. Syme, E. B. ii. 159, t. 276. Nyman, 134. Fl. Oxf. 64.

Native. Uliginal. Wet places on heaths, marshy margins of pools in heathy situations. Very local and confined to the heathlands of the southern parts of the Pang, the Kennet, and the Loddon districts. P. June–September.

First record. *Hypericum tomentosum* upon Bulmarsh Heath two miles from Reading, J. Watlington about 1652. See MS. in Ashmole's copy of [How's] *Phyt. Brit.* (It is interesting to find that after a period of two and a half centuries the plant still exists in the same locality.) *Ascyrum supinum villosum palustre*, C. B., Bagshot Heath, Mr. Doody in *Ray, Syn.* ed. 2, 345, 1696. *H. elodes*, Snelsmore, Mr. Bicheno in *Mavor's Agr. Berks*, 1809.

3. Pang. Cold Ash Common, *Bunny* in *Russell's Cat.*
4. Kennet. Bogs near Snelsmore, *Bicheno*, l. c. Crookham Common. *Stubbs in Britt. Contr.* Greenham Common, *Weaver*. Burghfield, *Bird*, 1833. Wickham, *Mrs. Batson*. Mortimer, *Tufnail*. Aldermaston Heath, and near the Decoy Pond.
5. Loddon. Bulmarsh, *Watlington*, and *Rudge* in *Herb. Brit. Mus.* Windsor Great Park near the Cascade, *Lightfoot's MSS.* (? in Surrey). Sunninghill, *Banks*, 1773. Bagshot Heath, *Doody*, l. c. Ascot, *Wilkin*. Heath Pool. Marsh below Brickfield near Wellington Coll., *Penny*. Near Sandhurst. Ambarrow. Bagshot Heath. Near Caesar's Camp. By the Lake in Military Coll. Grounds, Sandhurst. Broadmoor. Owlsmoor. Long Moor. White Moor.

The locality of Bagley Wood, given me by Rev. E. Fox, and inserted on his authority in my *Flora of Oxfordshire*, was, I am convinced, an error; he probably confused in his mind the Bagley Wood with a Dorsetshire locality. I did not discover until after the *Flora* was published that my old friend's once excellent memory had become a little uncertain.

H. elodes does not, so far as I am aware, occur in Oxfordshire or Gloucestershire, but is found in the other bordering counties.

MALVACEAE, Adans. in Mém. Act. Paris (1761), 224.

MALVA, Linn. Gen. n. 751 (Tournefort, Inst. t. 94).

M. moschata, Linn. Sp. Pl. 690 (1753). *Musk Mallon*, *Jagged-leaved Vervain Mallon*.

Malva verbenaca, Gerard, 785. Baxt. t. 25.

Top. Bot. 84. Syme, E. B. ii. 166, 280. Nyman, 129. Fl. Oxf. 59. Native. Septal. Field borders, waysides, and dry or sandy pastures, &c. Locally common. P. May–October.

First record. Hinksey, *Mr. Baxter, MSS.* 1812, and *Phaen. Bot.* 25, 1834.

1. Isis. Carswell, *Miss M. Niven*. Fyfield.
2. Ock. Hinksey. Cumnor Hurst. Bagley Wood, *Baxter*, l. c. Jenny Bunting's Parlour, *Boswell*. Marcham, *Walker*. Culham. Cothill. Frilford. Upton. Chilton.
3. Pang. Streatley, *Pamplin*. Frequent about Beedon, *W. M. Rogers*.

- Bradfield, *Jenkinson*. Unwell Wood, *Lawson in Herb. Oxf.* 1870. Sulham, *Tufnail*. Near Cold Ash Common. Englefield. Hermitage. Ashampstead. Aldworth. Ashridge. Tilehurst. Bucklebury. Near Tidmarsh. Hampstead Norris. Frilsham.
4. *Kennet*. Newbury, *Russell's Cat.* Beedon Wood, *W. M. Rogers*. Greenham. Newbury. Theale. Brimpton. Midgham. Theale. Aldermaston. Padworth. Snelsmore. Lambourn. Shefford. Burghfield. Silchester. Kintbury. Catmore. Bagnor. Inkpen, &c.
5. *Loddon*. Finchampstead, *Penny*. Remenham, *Stanton*. Wokingham, *Crawley*. Ambarrow. Arborfield. Twyford. Maidenhead. Sonning. Coleman's Moor. Bagshot. Frogmore.

Var. *INTERMEDIA*, Gren. and Godr. Fl. Fr. i. 289, which has the radical leaves reniform, crenulate, and the stem leaves divided into segments (*lanières étroites*), has been seen at Hampstead Norris, Theale, Hermitage, Newbury, Mortimer, and Padworth.

Var. *RAMONDIANA*, Gren. and Godr. l. c., has all the leaves entire and dentate; in 1895 I found it growing rather plentifully near Tilehurst. Specimens were sent to the *Bot. Exch. Club* in that year.

Var. *LACINIATA*, Gren. and Godr. l. c., has all the leaves divided into segments and is our common form.

White-flowered specimens have been noticed at Theale and Mortimer. *M. moschata* occurs in all the bordering counties.

M. sylvestris, Linn. Sp. Pl. 689 (1753), and of Gerard, 785 (1597). *Common Mallow, Cheeses*.

Top. Bot. 85. Syme, E. B. ii. 167, t. 281. Nyman, 129. Fl. Oxf. 60. Native. Vistal. Waysides, waste ground. Most frequently near villages and particularly fond of growing at the base of a sunny wall. Occurs on the Abbey ruins at Reading. Common and generally distributed through the county. P. May–October.

First record. '*Malva vulgaris similis flore albo minore*. Found within ye walls of Windsor Castle. It continues the colour and smallness of the flower from seed.' The specimen, which was collected by Mr. S. Rand before 1700, is preserved in the *Du Bois Herbarium at Oxford*. Included in *Russell's Cat.* 1839.

Var. *LASIOCARPA*, mihi. The carpels are described in English Botany as being glabrous, but specimens have been found with hairy carpels at Abingdon, near South Hinksey, &c. In other respects the plant does not appear to differ from the type.

Var. *MICRANTHA*, Bromf. Fl. Vectensis, 80 (1856). This was described by its author as having flowers only a quarter of the normal size, and of a deeper and more uniform purple colour. Plants with flowers about half the normal size occurred at Reading in 1896. The plant

gathered by Rand at Windsor Castle appears to be a white-flowered form.

In *Malva sylvestris* the flowers vary considerably in size; on rich waste ground at Grandpont I have found them $1\frac{1}{2}$ inches across. White-flowered plants have been seen near Abingdon; but I have never seen in Berkshire the chicory-blue-coloured form which I have gathered near Woodcote in Oxfordshire and near Hunstanton in Norfolk.

The leaves are often infected with *Puccinia malvacearum*.

M. sylvestris occurs in all the bordering counties.

M. rotundifolia, Linn. Sp. Pl. 688 (1753). *Dwarf Mallov.*

M. sylvestris pumila, Gerard, 785 (1597).

Top. Bot. 85. Syme, E. B. ii. 168, t. 282. Nyman, 130. Fl. Oxf. 60. Native. Viatical. Dry waste places, roadsides, often under walls in villages. Common and widely distributed. P. May–August.

First record. In *Russell's Cat.* for 1839, but without locality. Given for the vicinity of Marlow by Mr. G. G. Mill in *Phyt.* i. 984, 1843.

The two foregoing species of *Malva* are so widely spread that there is no need to give localities.

M. rotundifolia occurs in all the bordering counties.

****M. NICAEENSIS**, All. Fl. Ped. ii. 40 (1785).

Comp. Cyb. Br. 493. Reichb. Ic. Fl. Germ. et Helv. v. f. 4838. Nyman, 130. Fl. Oxf. 60.

Casual. Alien. Waste places. Rare. P. July–September.

On waste ground at Grandpont. Near Abingdon on a rubbish heap.

****M. PUSILLA**, Sm. E. B. t. 241 (1795). With. Bot. Arr. ed. 3, 612 (1796).

M. borealis, Wallm. in Liljebl. Svensk. Fl. ed. 3, 374 (1816).

Comp. Cyb. Br. 493. Syme, E. B. ii. 169, t. 283. Nyman, 130.

Casual. Waste places. Rare. P. June–September.

2. Ock. By the railway at Didcot. On rubbish between Abingdon and Oxford. On Abingdon Racecourse.

5. Loddon. On rubbish close to Wellington College Station.

TILIACEAE, Jussieu, Gen. 289 (1789).

TILIA, Linn. Gen. n. 587 (Tournefort, Inst. t. 381).

****T. PLATYPHYLLOS**, Scop. Fl. Carn. ed. 2, i. 373 (1772). *Large-leaved Lime.*

T. europaea, Linn. Sp. Pl. 514 pro parte. *T. grandifolia*, Ehrh. Beitr. v. (1790) 159.

Top. Bot. 87. Syme, E. B. ii. 172, t. 285. Nyman, 130. Fl. Oxf. 60.

Alien. A planted tree in parks, shrubberies, as at Hurst, &c. June.

T. platyphyllos has been reported as growing in Stokenchurch woods in Oxfordshire, in Surrey, and in Wiltshire.

****T. EUROPAEA**, Linn. Sp. Pl. 514 (1753) p.p. Miller, Gard. Dict. ed. 8 (1768). *Lime-tree*, *Linden*.

T. vulgaris, Hayne, Arzn. Gew. iii. 47 (1813). *T. intermedia*, DC., Prod. i. 513 (1824).

Comp. Cyb. Br. 493. Syme, E. B. ii. 173, t. 286. Nyman, 131. Baxt. t. 293. Fl. Oxf. 60.

Alien. Occurs as a planted tree throughout the county. June.

First record. Common in almost every village, often planted before houses about Blewbury, in the Vale, and at Hermitage, *J. Lousley in Russell's Cat.* 1839.

Common in some of the woods about Park Place, Stanton. Fine trees in Windsor Park, &c.

****T. CORDATA**, Miller, Gard. Dict. ed. 8 (1768). *Small-leaved Lime.*

T. europaea, Linn. Sp. Pl. 514, var. γ . *T. ulmifolia*, Scop. Fl. Carn. ed. 2, i. 373. *T. parvifolia*, Ehrh. Beitr. v. (1787) 159.

Top. Bot. 87. Syme, E. B. ii. 176, t. 287. Nyman, 131. Fl. Oxf. 61.

Alien. Only occurs as a planted tree in scattered localities. June-July.

The Small-leaved Lime is said to be native in West Gloucestershire and Hampshire, and has been reported from Oxfordshire and Surrey.

LINACEAE, Dumort. Comm. Bot. 61 (1822).

MILLEGRANA, Adans. Fam. ii. 269 (1763).

M. Radiola, mihi. *All Seed, Rupture Wort.*

Radiola Linoides, Roth, Tent. Fl. Germ. i. 71 (1788). *Linum Radiola*, Linn. Sp. Pl. 281 (1753). *Radiola Millegrana*, Sm. Fl. Brit. i. 202 (1800), and E. B. t. 895. *Millegrana minima*, Ger. Em. 569. *Linoides*, Rupp. Fl. Jenen. 91 (1745).

Top. Bot. 83. Syme, E. B. ii. 179, t. 288. Nyman, 126. Baxt. t. 188. Fl. Oxf. 58.

Native. Ericetal. Inundatal. Damp heaths, grassy rides in heathy woods, or on the margins of pools where the herbage is short. Absent from the north of the county, but locally common on the heathlands of the south and west in the Kennet, and especially in the Loddon districts. A. June-September.

First record. Sunninghill, *Sir Joseph Banks*, 1773, in *Herb. Brit. Mus.* *Radiola 'millegrina'* [*Millegrana*], Mr. Bicheno, in *Mavor's Agr. Berks*, 1809.

[3. Pang. Search should be made for it on Bucklebury, Oare, and Cold Ash commons, for which localities I have at present no records.]

4. Kennet. Greenham Common, *Weaver*. Wickham, *Mrs. Batson*. Newbury, *Miss Coles*, *Russell's Cat.*, 1839. Burghfield Heath. Mortimer Common. Aldermaston Heath. Inkpen Common. Snelsmore Common.

5. Loddon. Sunninghill, *Banks*. Early Heath, *Britt. Contr.* Heath Pool, *Penny*. Ambarrow. Risely. Finchampstead. Long Moor. Bagshot Heath. Sandhurst. Near Broadmoor. Owls Moor. Near Wellington College.

Millegrana is recorded from all the bordering counties except Gloucestershire.

LINUM, Linn. Gen. n. 349 (Tournefort, Inst. t. 176).

L. catharticum, Linn. Sp. Pl. 281 (1753). *Purging Flax*, *Mill Mountain*.

Linocarpos, Thal. *L. sylvestre catharticum*, Ger. Em. 560.

Top. Bot. 83. Syme, E. B. ii. 181, t. 289. Curt. Fl. Lond. iii. t. 119.

Nyman, 126. Fl. Oxf. 58.

Native. Pascual. Dry pastures, heaths, chalk downs, and waysides.

Common and widely distributed. Ascends to the top of Walbury Camp, 959 feet. A. May–October.

First record. *L. catharticum*, *Russell's Cat.*, 1839 (without locality).

Winter Hill, &c., Mr. G. G. Mill in *Phyt.* i. 985, 1843.

L. catharticum occurs in all the bordering counties.

****L. USITATISSIMUM**, Linn. Sp. Pl. 277 (1753). *Flax*, *Linseed*.

Comp. Cyb. Br. 493. Syme, E. B. ii. 184, t. 292. Bart. t. 353. Nyman, 125. Fl. Oxf. 58.

Casual. Waste places, rubbish-heaps, by the railway on ballast, near flour-mills, but without the slightest pretension to be considered a native plant. A. June–September.

First noticed in the county by *Mr. J. C. Melvill* in 1871.

1. **Isis.** Wytham. Lechlade.

2. **Ock.** Grandpont. Didcot. Wootton.

3. **Pang.** Near Pangbourn. Tilehurst.

4. **Kennet.** Newbury. Near Southcote. Calcot.

5. **Loddon.** Farm near Crowthorn, as *L. angustifolium*, *Penny in Britt. Contr.* 1871. Near Sandford Mill on waste ground, *J. C. Melvill*. Plentiful in a field of oats near Culham, *Stanton*. Twyford. Maidenhead.

[**L. ANGUSTIFOLIUM**, Huds. Fl. Angl. ed. 2, 134 (1778).

Top. Bot. 83. Syme, E. B. ii. 185, t. 291. Nyman, 125. Fl. Oxf. 58.

Error. Recorded for Berkshire in *Britt. Contr.* in error; for Oxfordshire in one locality only for one year, for E. Gloucestershire with considerable doubt, and for Surrey, Hants, and Wilts.]

GERANIACEAE, St. Hil. Expos. Fam. ii. 51 (1805).

GERANIUM, Linn. Gen. Pl. n. 746 (Tournefort, Inst. t. 142).

[**G. SANGUINEUM**, Linn. Sp. Pl. 683 (1753). *Bloody Crane's-bill*.

Top. Bot. 100. Syme, E. B. ii. 191, t. 293. Nyman, 136.

On the Grotto, Windsor Park, but planted.

Oxfordshire and Hampshire, but only as an introduced plant.]

G. PHAEUM, Linn. Sp. Pl. 681 (1753). *Dusky Geranium*.

G. phaeum seu fuscum, Morison. Comp. Cyb. Br. 495. Syme, E. B. ii. 192, t. 294. Nyman, 137. Fl. Oxf. 66.

Alien. Hedges near houses, an escape from cultivation. Very rare. P. June–September.

First record. Sonning, *Mr. S. Rudge in Herb. Brit. Mus.* 1800. (Perhaps from his garden.)

1. **Isis.** Near Carswell, in the vicinity of a garden, *Miss M. Niven*.

[4. **Kennet.** The Adbury locality given in *Britten's Contr.* is in Hampshire.]

5. **Loddon.** Sonning, *Rudge, l. c.* Remenham Lane, *Stubbs in Britt. Contr.*

G. phaeum is reported as a more or less naturalized plant from Oxfordshire, Hampshire, Wiltshire, and Surrey.

G. nodosum, Linn. Sp. Pl. 681 (1753).

Syme, E. B. ii. 193, t. 295. Nyman, 137. Comp. Cyb. Br. 495.

Alien. Naturalized in a copse near Sudbury House, Faringdon, *Miss M. Niven*.

[**G. sylvaticum**, Linn. Sp. Pl. 681 (1753). Syme, E. B. ii. 194, t. 296. Nyman, 137.

Error. In a copy of Smith's *Flora Britannica* in the Linnean Society, Winch has written a note saying that Mr. J. Woods found it in meadows above Maidenhead. This is certainly a mistake; Mr. Winch probably appended the record by a slip of the pen to *G. sylvaticum* instead of to *G. pratense*.

The plant is only native in the northern counties.]

G. pratense, Linn. Sp. Pl. 681 (1753). *Meadow Geranium*, *Crowfoot Crane's-bill*.

G. Batrachioides, Gerard, 797.

Top. Bot. 95. Syme, E. B. ii. 195, t. 297. Baxt. t. 30. Nyman, 137. Fl. Oxf. 65.

Native. Pratal. Moist meadows, thickets, and osier-holts. Locally common, but chiefly confined to the trough of the valleys of the Thames and its larger tributaries, although ascending to some elevation on the chalk. P. May–August.

First record. *Crane's-bill* in the woods near Windsor, *Spencer's Complete British Traveller*, 1771.

1. **Isis**. Appleton, abundant, particularly in the churchyard and in the meadows near the Thames, *Miss Hoskins*. Cumnor and Besilsleigh, *Baxt. Phaen. Bot.* Carswell, *Miss M. Niven*. Near Lechlade. Coleshill. Near Shrivenham. Near Bablock Hythe.
2. **Ock**. Meadows near the Devil's Backbone, *Batter's MSS.*, 1823. Kennington Lane, *Garnsey*. Near Blewbury, but not very common, *Lousley in Russell's Cat.*, 1839. Denchworth, *Wait*. Moreton, *Sister Jane Frances*. Abingdon. Margham, *Walker*. Abingdon. Cholsey. Steventon. Very common by the Canal near Challow and Uffington. Sutton Courtney. Wittenham. Wallingford. Dideot. Hanney, &c.
3. **Pang**. Streatley, *Pamplin*. Ashridge. Compton. Abundant about Moulsoford. Pangbourn. Tilehurst.
4. **Kennet**. Meadows about Reading, *Fardon in Bot. Guide*. Beedon. Catmore, in plenty, *W. M. Rogers*. Wickham, *Mrs. Batson*. Lambourn. Very abundant along the Kennet as about Theale, Padworth, Newbury, Kintbury, Hungerford, &c. Very abundant near Catmore Woods. In June of 1895 the osier-beds and meadows near Midgham were a beautiful sight from the immense quantity of this plant in flower.
5. **Loddon**. Common in the meadows near the Thames by Windsor, *Gotobed in Bot. Guide*, 1805. Banks of the river (near Marlow), abundantly, *Mill*. Windsor Forest, *Spencer*. Wargrave, Cookham, *Britt. Contr.* Aston. Bolney Ferry. Between Henley and

Wargrave, *Stanton*. Sonning Meadows, very fine specimens, *Tufnail*. Hurley. Coleman's Moor. Near Waltham. Maidenhead. Old Windsor, &c.

G. pratense, which usually has bluish-purple flowers with more blue in them than *G. sylvaticum*, the tint being one of the most beautiful of any of our native plants, occasionally has them pure white; I have seen such a case in the Kennet valley near Midgham, but the plant had been destroyed when I next visited the place.

G. pratense occurs in all the bordering counties.

G. pyrenaicum, Burm. fil. Spec. Bot. de Geran. 27 (1759). *Mountain Crane's-bill*.

G. perenne, Huds. Fl. Angl. 265 (1762).

Top. Bot. 96. Syme, E. B. ii. 196, t. 298. Nyman, 137. Fl. Oxf. 66. Native. Viatical. Roadsides, ditches. Locally common and more often found about villages, but yet a native plant of the county. P. May–September.

First record. Near Oxford, Mr. Woodward in *Stokes, With. Bot. Arr.* ed. 2, ii. 729, 1787.

1. *Isis*. Cumnor, and with pale pink flowers near Besilsleigh, *Boswell*. Carswell, *Miss M. Niven*.
2. *Ock*. South Hinksey, *Boswell*. Tubney, *Walker*. Marcham. Shippon. With very pale pink flowers at Cothill. Bagley. Kennington.
3. *Pang*. Railway-side, *Tufnail*.
4. *Kennet*. North Heath, *Russell's Cat.* 1839. Between North Heath and Winterbourne, *W. M. Rogers*. Reading, *Tufnail*. Theale.
5. *Loddon*. Marlow, not very common, *Mill*. Wokingham, *Tufnail*. Near Loddon Bridge. Wargrave. Sonning. Near Twyford.

G. pyrenaicum occurs in all the bordering counties.

G. molle, Linn. Sp. Pl. 682 (1753). *Dove's-foot Crane's-bill*.

G. Columbinum, Gerard, 793 (not of Linnaeus).

Top. Bot. 98. Syme, E. B. ii. 197, t. 299. Nyman, 138. Fl. Oxf. 68. Native. Agrestal. Abundant in cornfields, pastures, waysides, heathy places, &c., throughout the county, but is much less frequent on the upper chalk downs; it ascends to the top of Walbury Camp, a height of 959 feet. A. April–December.

First record. *Geranium molle*, Dr. Noehden, *Mavor's Agr. Berks*, 1809. A MS. note (? by W. Browne) of *G. columbinum minus dissectis, flore albo*, in the Magdalen College copy of [How's] *Phyt. Brit.*, may possibly refer to this plant.

The flowers vary in colour from white to light purple. The extremes of colour are often found together, a fact showing that soil and situa-

tion are not the influencing factors in colour development. A form with carpels almost smooth was noticed on Boar's Hill, and is the var. *aequale*, Bab. Man. Brit. Bot. ed. 2, 65, 1847.

G. molle is common in the neighbouring counties.

G. pusillum, Linn. Syst., ed. 10, 1144 (1759), and Burm. fl. Spec. Bot. de Geran. 27.

G. parviflorum, Curt. Fl. Lond. f. vi. t. 46. *G. humile*, Cavanil. Diss. 202. Top. Bot. 97. Syme, E. B. ii. 198, t. 300. Nyman, 138. Fl. Oxf. 69. Native. Agrestal. Cultivated ground, waysides, &c. More frequent on sandy soil. Local and not very common. A. May–September. First record. South Hinksey, Mr. Baxter's MSS., 1812. Common about Marlow, Mr. G. G. Mill in *Phyt.* i. 985, 1843.

1. **Isis.** Near Besilsleigh. Pusey. Appleton. Faringdon.
2. **Ock.** South Hinksey, Baxter. Tubney, Walker. Cothill. Frilford. Jenny Bunting's Parlour, above South Hinksey. Near Abingdon. Culham. Kingston Bagpuze.
3. **Pang.** Streatley, Pamplin. Frequent about Beedon, W. M. Rogers. Tilehurst in some frequency, Tufnail. Pangbourn. Bradfield. Fields above Unwell Wood. Hermitage. Frilsham.
4. **Kennet.** Frequent about Beedon, W. M. Rogers. Newbury, Mrs. Russell. Padworth. Brimpton. Theale.
5. **Loddon.** Sonning railway-side, Tufnail. Common about Marlow, Mill, l.c. Common about Henley, Stanton. Knowl Hill. Farley Hill. Early. Twyford. Maidenhead. Windsor Park. Sandhurst. Near Park Place, large specimens.

A small form which grew in dry sandy fields near Cothill, with more deeply-divided leaves and dwarf stem, is probably the var. *humile*, DC., Prod. i. 643 (1824).

G. pusillum occurs in all the bordering counties.

G. rotundifolium, Linn. Sp. Pl. 683 (1753). Round-leaved Crane's-bill.

G. columbinum majus, flore minore coeruleo, Ray, Syn. 358.

Top. Bot. 97. Syme, E. B. ii. 199, t. 301. Nyman, 138. Fl. Oxf. 68. Native. Glareal and rupestral. Dry hedge-banks, tops of mud-covered walls, and waysides. Locally common. Annual, or perhaps more frequently biennial; the rosette of leaves from the summer seed is a conspicuous feature by some of our roadsides. In flower from May to October, but the late-flowering plants are probably from the first crop.

First record. South Hinksey, Mr. Baxter's MSS., 1812. Included, without a locality, by Mr. T. B. Flower in *Robertson's Env. of Reading*, 1843.

1. **Isis.** Cumnor. Longworth. Near Besilsleigh. Eaton Stibble. Appleton. Abundant on the limestone.
2. **Ock.** South Hinksey, Baxter. Sunningwell, Boswell. Tubney,

Walker. Very abundant about Cothill. *Marcham.* Abingdon. North Hinksey. Dry Sandford. Plentiful in cornfield on Boar's Hill. Frilford. Kingston Bagpuze.

3. *Pang.* Pangbourn. Tidmarsh.

5. *Loddon.* Maidenhead. Wargrave, *Britten.* Between Sonning and Twyford, *Melville.* Between Hurst and Reading.

It has been noticed with white flowers at Cothill. The leaves are of a paler yellow tint than those of any other British species. This plant was especially abundant in the dry springs of 1893-4. It reaches its maximum of frequency on the Coralline Oolite, but is also found on gravelly or sandy soils, especially when these are made up of calcareous debris.

Buckinghamshire appears to be the only one of the neighbouring counties for which *G. rotundifolium* is not recorded.

G. dissectum, Linn. Cent. Pl. i. 21, and Fl. Suec. ed. 2, 242 (1755).

Top. Bot. 98. Syme, E. B. ii. 200, t. 302. Nyman, 138. Fl. Oxf. 67.

Native. Agrestal. Cornfields, cultivated ground, hedge-banks, &c.

Common and widely distributed. B. May-August.

First record. *Geranium columbinum maximum foliis dissectis*, on that part of Botley Causeway next Oxford in great plenty, *Plot, Nat. Hist. of Oxford*, 1677. (The locality was probably in Oxfordshire, but the plant extends into Berkshire in the vicinity.) Another early record is that of *Geranium Columbinum majus foliis imis longis usque ad pediculum divisis*. In agris et pratis Oxonium circumjacentibus a Jacobo Bobert juniore detecta, *Morison, Hist. Ox.* ii. 511, 1680.

The plant is too generally distributed to need the enumeration of special localities; next to *G. molle* it is our commonest species. White-flowered plants have been noticed near Moulsoford.

G. dissectum occurs in all the bordering counties.

G. columbinum, Linn. Sp. Pl. 682 (1753). *Bobart's long cut Crane's-bill*, *Petiver, Herb. Brit.* t. 64, f. 8.

Top. Bot. 98. Syme, E. B. ii. 201, t. 303. Nyman, 138. Fl. Oxf. 67.

Native. Glareal, &c. Fields, dry stony places, hedge-banks, &c.

Rather local. A. May-October.

First record. *Geranium columbinum annuum minus folio tenuius, laciniato, flore pediculo longissimo insistente*. Haec species in agris et pratis Oxonium circumjacentibus a Jacobo Bobert juniore detecta fuit inter caeteras Geraniorum malvaceorum seu columbinorum species antea detectas, *Morison, Hist. Ox.* ii. 512, 1680. The specimen of *G. columbinum* collected by Bobart is preserved in the Herbarium at Oxford.

1. *Isis.* Near Wytham Wood, *Baxter*, 1819; in *Purt. Midl. Fl. Cumnor*.

2. **Ock.** North Hinksey, *Round in Walk.* *Fl.* Jenny Bunting's Parlour, *Boswell.* Fields between Ferry Hinksey and Hen Wood, *Sister Jane Frances.*
3. **Pang.** Compton. Near Unwell Wood. Ashampstead. Moulshford. Near Tidmarsh.
4. **Kennet.** Woodhay, *Mr. Weaver.* Between Lambourn and Chilton Foliat. Mortimer. Padworth. Newbury.
5. **Loddon.** Bisham, *Melville.* Wargrave, *Britten.* Sonning, *Tufnail.* Remenham, *Stanton.* Very fine specimens in a lane between Farley Hill and Jouldern's Ford. Hurley. Waltham. Near Hurst. Twyford.

G. columbinum occurs in all the bordering counties.

G. lucidum, Linn. Sp. Pl. 682 (1753). *Shining Dove's-foot Crane's-bill.*

G. saxatile, Ray, Syn. 361, and Ger. Em. 938.

Top. Bot. 99. Syme, E. B. ii. 202, t. 304. Nyman, 138. Fl. Oxf. 69. Native. Septal, &c. Hedge-banks, old walls. Local and rather rare. B. May–August.

First record. *Geranium annuum rotundifolium montanum saxatile lucidum* item passim in subgrundiis Oxoniensibus, *Morison, Hist. Ox.* ii. 512, 1680. *G. lucidum*, Mr. Bicheno, walls about Abingdon, *Mavor's Agr. Berks*, 1809.

1. **Isis.** Near Besilsleigh.

2. **Ock.** North Hinksey, *Whitwell.* South Hinksey, *Baxter.* About Abingdon, *Bicheno.* About Hagbourn and Blewbury, but not common, *Lousley, in Russell's Cat.* Wootton. Marcham, *Walker.* Cothill.

4. **Kennet.** Pile Hill, Newbury. *Weaver.* Aldermaston Soak. Greenham.

5. **Loddon.** Wellington Coll. List, 1894. Sindlesham, *Tufnail.* Near Loddon Bridge. Near Hurst.

Seedling plants are found in the autumn from seeds produced the previous spring, as in *G. rotundifolium*, &c.

G. lucidum is recorded for all the border counties; there is a specimen from Little Missenden, Bucks, in the Herbarium at Oxford, dated 1832, but labelled by the collector *G. columbinum*.

G. Robertianum, Linn. Sp. Pl. 681 (1753), and of Gerard, 794. *Herb Robert.*

Top. Bot. 100. Syme, E. B. ii. 203, t. 305. Nyman, 138. Fl. Oxf. 69. Native. Viatical, septal. Hedges, woods, wall-tops, &c. Common and generally distributed. B. April–September.

First record. *G. Robertianum*, Dr. Noehden, *Mavor's Agr. Berks*, 1809.

White-flowered plants (*f. alba*) have been noticed by Miss F. M. Parker at the Manor House, Fyfield, and by myself near Early

Heath, where they have occurred for several years. A dwarf form with smaller flowers and very red stems and foliage, has been noticed on chalk rubble at Didcot, on walls at Kintbury, on a wall at Compton, and on the chalk embankment of the railway at Hampstead Norris, &c. In the *Report of the Bot. Record Club* for 1886, 119, Dr. F. A. Lees suggested that this might be a hybrid of *G. Robertianum* and *G. lucidum*, but was worth further study; our plant is certainly not a hybrid, but is probably the form called var. *RUBRICAULIS*, Horn. in Willk. et Lange, Prod. Fl. Hisp. iii. 530.

G. Robertianum occurs in all the bordering counties.

ERODIUM, L'Hérit. Geraniologia, t. 1, ad 6 (1787).

E. cicutarium, L'Hérit. in Aiton, Hort. Kew. ed. 1, ii. 414 (1789). *Hemlock-leaved Crane's-bill*.

Geranium Cicutae folio inodorum, Ger. Em. 945. *G. cicutarium*, Linn. Sp. Pl. 680 (1753).

Top. Bot. 94. Syme, E. B. ii. 206, t. 307. Nyman, 140. Fl. Oxf. 70. Native. Agrestal, glareal. Sandy fields and heaths, waysides, wall-tops, &c. Locally common and widely distributed, but absent from a large area of the Clays and Chalk. A. or B. April-September.

First record. *Geranium moschatum* (sic). Dry pastures, Dr. Noehden, *Mavor's Agr. Berks*, 1809. *G. cicutarium*, South Hinksey, *Mr. Baxter's MSS.* 1812.

1. **Isis.** Carswell, *Miss M. Niven*. Besilsleigh. Longworth. Wytham. Appleton. Cumnor. Buckland, *Boswell*. Faringdon. Pusey. Botley. Wytham.
2. **Ock.** South Hinksey, *Baxter*. Cumnor Hurst, *Morrison*. Coles' Pits, *Bellamy*. Marcham, *Walker*. Hanney and Denchworth, *Wait*. Boar's Hill. Wootton. Frilford. Abingdon. Cothill. Culham (fine specimens). Didcot. Radley. Very large specimens at Kingston Bagpuze.
3. **Pang.** Streatley, *Pamplin*. Bucklebury. Hawkridge. Cold Ash. Oare. Bradfield. Fields near Unwell Wood. Hermitage.
4. **Kennet.** Pile Hill, *Weaver*. Wickham, *Mrs. Batson*. Abundant on the side of the railway near Reading. Burghfield. Newbury. Mortimer. Southcote. Very common in this district.
5. **Loddon.** Wellington College, *Penny*. Park Place. Remenham, frequent, *Stanton*. Very fine specimens in a field above Cookham and near Winter Hill. Windsor Park. Finchampstead. Ambarrow. Bracknell. Bearwood. Stubbing's Heath. Sandhurst. Ruscombe. Very luxuriant between Bray Wick and Maidenhead, Sonning Cutting, &c.

Erodium cicutarium is found in all the bordering counties.

****E. MOSCHATUM**, L'Hérit. l. c.*Musk Stork's-bill.*

Geranium moschatum, Burm. fil. Sp. Bot. Geran. 29, and of Parkinson, 709. Cyb. Br. 132. Syme, E. B. ii. 208, t. 308. Nyman, 139. Baxt. t. 362. Fl. Oxf. 70. Casual. Waste places. Very rare. A. or B. June-July.

First record. Mortimer, *Mr. F. Tufnail*, 1891. The *G. moschatum* of Mavor's *Agr. Berks* evidently meant *E. cicutarium*.

4. Kennet. Mortimer, *Tufnail*.

It has been recorded for all the bordering counties except Gloucestershire. It occurs in Buckinghamshire on left of Eton and Ditton Road, just before coming to London and Bath Road, *Bolton King*.

[**E. MARITIMUM**, L'Hérit. l. c. Syme, E. B. ii. 209, t. 309. Has been recorded for Surrey, Hampshire, and W. Gloucestershire. It is a maritime species not likely to be found in Berkshire.]

OXALIS, Linn. Gen. n. 515 (*Oxys*, Tournefort, Inst. t. 19).**O. Acetosella**, Linn. Sp. Pl. 433 (1753).*Wood Sorrel.*

Oxys alba, Gerard, 1030.

Top. Bot. 101. Syme, E. B. ii. 211, t. 310. Nyman, 141. Baxt. t. 327. Fl. Oxf. 70.

Native. Sylvestral. Woods, thickets, and hedge-banks. Widely distributed and locally abundant, but much less frequent in the heathy woods of the south-west, and absent from those more recently planted. P. April-August.

First record. Bagley Wood, *Sir Joseph Banks' MS.* and *Herb. Brit. Mus.* 1770. *O. acetosella*, Dr. Noehden, *Mavor's Agr. Berks*, 1809.

Var. *SUBPURPURASCENS*, DC., Prod. i. 700 (1824).

This very pretty form occurs in the woods near Grimsbury Castle, Cold Ash, Ashampstead, Snelsmore, and near Marlow. Leighton found that it retains its colour under cultivation. Var. *violacea* occurred near Bucklebury.

Oxalis Acetosella is found in all the bordering counties.

****O. STRICTA**, Linn. Sp. Pl. 435 (1753).

Comp. Cyb. Br. 496. Syme, E. B. ii. 214, t. 312. Nyman, 141. Fl. Oxf. 71. Casual. Near Maidenhead by the railway, but not permanent. A native of North America.

***O. CORNICULATA**, Linn. Sp. Pl. 435 (1753).

Comp. Cyb. Br. 496. Syme, E. B. ii. 213, t. 311. Nyman, 141. Alien. Agrestal. Garden ground, very rare. P. June-September.

It is rather common as a garden weed at Frogmore.

This plant is found in a more or less casual manner in the counties of Oxford, Hants, and Wilts.

IMPATIENS, Linn. Gen. n. 899 (Rivinus, iv. 146).***I. biflora**, Walter, Fl. Carolina, 219 (1788).

I. fulva, Nuttall, N. Amer. Pl. i. 146 (1818).

Comp. Cyb. Br. 496. Syme, E. B. ii. 217, t. 314. Nyman, 141.

Colonist. Borders of streams. Locally abundant. A. June-Sept.
First found by the Emborne Stream, *Mr. Weaver*, about 1890, and *Herb. Druce*, 1891.

4. **Kennet.** The presence of this plant is due to its having been planted near Milford Pond in the Earl of Carnarvon's Park at Highclere. From this place it has been carried down the Emborne Stream for many miles, and will doubtless extend into the Kennet. It is a great ornament to the stream as it passes by Greenham Common.

Impatiens biflora, an American species, now thoroughly naturalized along the course of several streams in the south of England, is reported from Hampshire, Wiltshire, and Surrey.

[**I. MOLI-TANGERE**, Linn. Sp. Pl. 938 (1753). Syme, E. B. ii. 216, t. 313. Nyman, 141. This plant has been reported from Surrey and Wiltshire, and has recently been found by Mr. Stanton on the Buckinghamshire side of the Thames near Henley, but probably only as an introduced species.]

***I. parviflora**, DC., Prod. i. 687 (1824).

Comp. Cyb. Br. 496. Syme, E. B. ii. 218, t. 315. Nyman, 141. Fl. Oxf. 71.

Colonist. Woods, waste ground, gardens, and hedge-banks. Locally abundant. A. May-August.

First found in Berkshire by the author in 1889.

1. **Isis.** Abundant in Pusey woods.
2. **Ock.** Covering acres in Pusey Wood, where it was probably introduced with Buckwheat used for pheasants' food.
5. **Loddon.** Near Sandhurst in several places. Near Ascot.
The plant is of Russian origin.

****I. ROYLEI**, Walp. Rep. i. 475 (1842).

I. glandulifera, Royle, Ill. 151, t. 28, f. 2 (not of Arnott). Bot. Mag. t. 4020. Casual. Alien. Waste ground, &c. B. June-September.

In Bagley Wood, *Sister Jane Frances*. Near Padworth Mill. Near Aston Ferry.

****LIMNANTHES DOUGLASII**, R. Br. in Lond. and Edinb. Phil. Mag. ii. 70 (1833).

An American plant, recorded from banks of Thames between Pangbourn and Hurley in 1870 by *Mr. A. French*, and near Hurst by *Mr. J. C. Melvill*.

ILICACEAE, Lowe, Fl. Mad. ii. 11 (1868).

Aquifoliaceae, DC., Théor. Élém. i. 217 (1813). *Ilicineae*, Brongn. in Ann. Sc. Nat. x. 329 (1827).

ILEX, Linn. Gen. n. 158 (*Aquifolium*, Tournefort, Inst. t. 371).

I. Aquifolium, Linn. Sp. Pl. 125 (1753). *Holm, Holly*.

Aquifolium Ilex, Scop. Fl. Carn. ed. 2, 116 (1772). *Agriifolium*, Gerard,

Top. Bot. 274. Syme, E. B. ii. 219, t. 316. Nyman, 144. Baxt. t. 262. Fl. Oxf. 72.

Native. Sylvestral. Woods and hedges. Tree. Locally common. April–August.

First record. With *Opegrapha elegans*, Hook., and *Thelotrema lepadinum*, on the bark, and *Eustegia ilicis* (Stegia), *Ceuthospora phascidioides* (Phacidium ilicis), and *Sphaeria ilicis* (Diplodia), on the dead leaves in Bagley Wood, *Baxter's Phaen. Bot.* 262, 1838; also *Baxter's Stirp. Ox.* 1825. There is a MS. note in *Bibl. Brit. Mus.* by Mr. M. Harding, circa 1680, stating that the *variegated holly* occurs about Oxford.

1. Isis. Wytham. Pusey. Appleton, together with an entire-leaved form (*f. inermis*).
2. Ock. Bagley, *Baxter*. Boar's Hill. Tubney. Kingston Bagpuze. Frilford.
3. Pang. Streatley, *Pamplin*, De la Bere, Pangbourn. A variegated form near Cold Ash Common. Hawkridge Wood. Ashampstead. Bucklebury Common. Bradfield. An entire-leaved form in Oarebury Wood. Bucklebury. Tidmarsh. Tilehurst. Fence Wood. Frilsham. Yattendon.
4. Kennet. Inkpen. Very fine about Hampstead Marshall. Greenham Common. Crookham Common. Aldermaston. Burghfield. Mortimer. Silchester amphitheatre. Wickham. Snelsmore.
5. Loddon. Wellington Coll. List. Common about Park Place, *Stanton*. Ashley Hill. Stubbing's Heath. Bearwood. Early. Wargrave. Risely. Finchampstead. Bagshot. Ascot. Sunningdale. Windsor Park (trees 40 feet high). Ambarrow. Wokingham. Swinley. Binfield. Sandhurst. Cranbourne Park. Abundant on Warren Row Common.

Ilex aquifolium is found in all the bordering counties.

CELASTRACEAE, Lindl. Nat. Syst. ed. 2, 119 (1836).

EUONYMUS, Linn. Gen. n. 240 (Tournefort, Inst. t. 388).

E. europaeus, Linn. Sp. Pl. 197 a (1753). *Spindle Tree*, *Skewer-wood*.

E. vulgaris, Park. 241 (1640). Scop. Fl. Carn. ed. 2, i. 167 (1772), and Miller, Gard. Dict. ed. 8 (1768). *E. Theophrasti*, Gerard, 1284.

Top. Bot. 101. Syme, E. B. ii. 224, t. 317. Nyman, 144. Baxt. t. 123. Fl. Oxf. 71.

Native. Septal. Hedges, woods, and open bushy places, locally common, especially on the Oolite and Chalk. Its beautifully coloured fruits are very ornamental in many of our hedgerows in the autumn. Shrub. May–June.

First record. At Cumnor, *Mr. Baxter's MSS.* 1823. Published in *Russell's Cat.* 1839.

1. **Isis.** Cumnor, *Baxter*. Carswell, *Miss M. Niven*. Besilsleigh. Buckland. Appleton. Wytham (with a variegated form), abundant and untouched by the rabbits. Idstone. Eaton Stibble.
 2. **Ook.** Between South Hinksey and Bagley, *Baxter*. Between Radley and Abingdon, *Whitwell*. Denchworth, *Wail*. Grove, *Baxter*, 1833. Boar's Hill. Cothill. North Moreton. Steventon. Lockinge. Uffington. Wootton. Wittenham. Lowbury. Tubney, *Walker*. Kennington.
 3. **Pang.** Streatley, *Pamplin*. Very common about Beedon, *W. M. Rogers*. Basildon. A large tree near Pangbourn. Moulsoford. Compton. Hampstead Norris. Oare. Bradfield, &c. Common in this district.
 4. **Kenet.** Common about Beedon, *W. M. Rogers*. Mortimer, *Tufnail*. Lane leading to North Heath, *Russell's Cat*. Boxford, *Weaver*. Wickham, *Mrs. Balson*. Aldermaston. Silchester. Sulhampstead. Riever Wood. Hungerford. Lambourn. Shefford. Inkpen. West Ilsley. Near Chieveley. Hampstead Marshall.
 5. **Loddon.** Bisham Wood and hedges generally, *Mill*. Road near Ford, *Penny*. Frequent in the chalky district about Park Place, *Stanton*. Windsor, *Bolton King*. Wargrave. Coleman's Moor. Twyford. Loddon Bridge. Cookham. Sonning.
- It is absent from a considerable area of this district where the ground is occupied by heath and pinewoods.
Euonymus is found in all the neighbouring counties.

RHAMNACEAE, Lindl. Nat. Syst. ed. 2, 107 (1836).

RHAMNUS, Linn. Gen. n. 235 (Tournefort, Inst. t. 366).

R. catharticus, Linn. Sp. Pl. 193 (1753), and of J. Bauhin. *Buckthorn*.
R. solutivus, Ger. Em. 1337.

Top. Bot. 102. Syme, E. B. ii. 226, t. 318. Nyman, 145. Fl. Oxf. 72.
 Native. Septal. Hedgerows, coppices, &c. Common in the county, especially on the Oolite and Chalk, but generally distributed, except in the heathy district of the Bagshot Sands. It occurs occasionally by the side of streams in peaty soil. Shrub. May-June.
 First record. Hedges near Reading, Mr. Fardon, in *Bot. Guide*, 1805.

1. **Isis.** Cumnor. Wytham. Appleton. Longworth. Faringdon. Pusey. Shrivenham. Coleshill. Ashbury. Near Lechlade.
2. **Ook.** Hinksey, *Baxter*. Upton, *Lousley*, in *Russell's Cat*. 1839. Bagley. Kennington. Radley. Wittenham. Wallingford. Lockinge. Didcot. Wantage. Uffington. Charney Bassett. Garford. Marcham.
3. **Pang.** Streatley, *Pamplin*. Hampstead Norris, *Lousley*, l.c. Locally common about Langley, *W. M. Rogers*. Hedges near

Reading, *Bot. Guide*. Pangbourn. Bradfield. Yattendon. Compton, abundant. Mouldsford. Basildon. Tilehurst. Sulham. Bucklebury.

4. Kennet. Locally common about Beedon and Catmore, *W. M. Rogers*. Hedges near Reading, *Bot. Guide*. Chilton Foliat. Hungerford. Kintbury. Inkpen. Lambourn. Shefford. Englefield. Theale. West Ilsley, &c.
5. Loddon. Cookham. Wargrave, *Melville*, in *Britt. Contr.* Swallowfield, *Tufnail*. Park Place, Rose Hill, *Stanton*. Hedges near Reading, *Bot. Guide*. Windsor, *Everet*. Maidenhead. Bisham. Aston. Stubbing's Heath. Waltham. Bearwood. Loddon-side. Arborfield. Sonning. Finchampstead. Frogmore.

Rhamnus catharticus occurs in all the bordering counties.

R. Frangula, Linn. Sp. Pl. 193 (1753). *Berry-bearing Alder*.

Frangula, Matth. *Alnus nigra, sive frangula*, Gerard, 1286.

Top. Bot. 102. Syme, E. B. ii. 228, t. 319. Nyman, 145. Baxt. t. 219. Fl. Oxf. 72.

Native. Uliginous. Wet heaths, bushy places. Local and rather rare. Confined to the peaty areas of the southern part of the county. Shrub. May-Sept. Ripe fruit and flowers are often seen together on the bush.

First record. *Alnus nigra baccifera*, with the common Alders by Coleman's Moor nigh Reding, MS. in *Ray's Cat.* about 1680, cited in *Phyt.* iv. 745, 1852.

3. Pang. *R. frangula*. Near Streatley, *Pamplin in Phyt.* (1854), 155. I have been unable to verify the record, nor has Mr. Tufnail been able to meet with it.
4. Kennet. *Russell's Cat.* 1839. Burghfield. Mortimer. Greenham. Common, very fine specimens. Ufton Wood. Aldermaston.
5. Loddon. Coleman's Moor, MS., l.c. One or two bushes by Loddon River below Loddon Bridge. Early, *Lees*, in *Fl. Oxf.* Sunninghill, *Baker*. Cox's Wood, *Penny*. Finchampstead. Near Jouldern's Ford. Wellington. Sandhurst. Broadmoor. Wood near the river, Blackwater.

This species is practically confined to the sandy peaty tracts of the Bagshot Sands.

R. frangula is not recorded for Wiltshire or E. Gloucestershire, and is extremely rare in Oxfordshire.

SAPINDACEAE, Jussieu, Ann. Mus. xviii. 476 (1811).

ACER, Linn. Gen. n. 1023 (Tournefort, Inst. t. 386).

***A. Pseudo-platanus**, Linn. Sp. Pl. 1054 (1753). *Sycamore*.

Acer majus, Gerard, 1300.

Comp. Cyb. Br. 494. Syme, E. B. ii. 230, t. 320. Nyman, 135. Fl. Oxf. 65.

Denizen. Woods, hedges. Common. Tree. April-June.

First record. Grows in Lower Farm Close, Blewbury, Hampstead Norris, and many other places, Mr. J. Lousley, in *Russell's Cat.* 1839.

The Sycamore occurs so frequently as a planted tree throughout the county that it is needless to give special localities; there are trees within the Abbey ruins at Reading; its leaves are often infected by *Rhytisma acerinum*.

It readily propagates itself by its seeds, and seedlings with 2-4 cotyledonary leaves are often to be seen. It is now thoroughly established, and in some cases, as on Pinkney's Heath, Wytham, Bagley Wood, Tilehurst, &c., looks quite wild.

A fine specimen is to be seen in Hampstead Marshall Park.

A. campestre, Linn. Sp. Pl. 1055 (1753). *The Maple.*

Top. Bot. 93. Syme, E. B. ii. 232, t. 321. Baxt. t. 98. Nyman, 135. Fl. Oxf. 65.

Native. Septal. Hedges. Common. Small tree. May-June.

First record. *Acutie foliorum cognitu facilis Aceris species quam prope Oxoniam oriri nonnulli sponte nobis asseruerunt, Lobel. Adversaria*, 443, 1570. (With the above notice Lobel figures a portion of the tree, which shows the leaves to be much more deeply cut than in the common plant. Lobel says that it had been mistaken for the Plane. The above record is given by Mr. W. A. Clarke as the first notice of the occurrence of the Maple in Britain. Lobelius' description does not appear to point with certainty to *A. campestre*.) *Acer campestre*, common in hedges, and the wood is much valued for turning in the lathe, *Mavor's Agr. Berks*, 1809. Very common about Hampstead Norris, &c., Mr. J. Lousley in *Russell's Cat.* 1839. In *Phaenogamous Botany*, 1835, Baxter describes the samaras as being downy, and says that *Erysiphe bicornis* [*uncinula*] is common on the leaves about Oxford.

Acer campestre is a very frequent plant in our hedges, especially on the Oolite, Chalk, and dry gravelly soils; it is generally distributed through the county, and adds much to the beauty of the country lanes by its autumnal colouring. There is a fine tree between thirty and forty feet high near Kintbury.

Var. **HEBECARPUM**, DC., Prod. i. 594. *A. campestre*, Linn. Herb., is the common and generally distributed form. It has pubescent samaras. Specimens were sent to *Bot. Exch. Club* in 1892 by the author from Hinksey.

Var. **LEIOCARPON**, Wallr. Sched. Pl. Crit. i. 188 (1822), has glabrous

samaras and is much the less frequent form, but it has been noticed at Radley, Cothill, Tubney, Ashampstead, Mortimer, Wargrave, &c. Specimens were distributed through the *Bot. Exch. Club*, 1891, from Radley by the author. See *Rep.* p. 325.

A form of *A. campestre* (*dissectifolium*) is reported by Mr. J. C. Melvill from between Osney and Binsey, but the locality is in Oxfordshire.

The *Maple* is found in all the bordering counties.

LEGUMINOSAE, Adans. Fam. 1763.

CASSIACEAE, Link, Handb. ii. 135 (1831). *Papilionaceae*,
Linn. Ph. Bot. 33 (1751). Ord. Nat. (1764).

GENISTA, Linn. Gen. n. 766 (*Spartium*, Tournefort, Inst. t. 412).

G. anglica, Linn. Sp. Pl. 710 (1753). *Needle Furze*, *Petty Whin*.

G. aculeata, Gerard, 1140.

Top. Bot. 105. Syme, E. B. iii. 8, t. 326. Nyman, 151. Fl. Oxf. 73.

Native. Ericetal. Heaths. Local. Shrub. April-July.

First record. *G. anglica*, Dr. Noehden, *Mavor's Agr. Berks*, 1809.

2. **Ook**. A little beyond Childswell Farm, *Baxter in Walk. Fl.* 1833.
(Now probably extinct.)

3. **Pang**. Pangbourn Marsh, *Tufnail*. Bradfield, *Jenkinson*. Oare
Common. Bucklebury Common. Cold Ash Common.

4. **Kennet**. Greenham Heath, *Rupert Jones*. Burghfield and Mor-
timer, *Bird*, 1833. (Still there in 1895.) Wickham, *Mrs. Batson*.
Silchester.

5. **Loddon**. Cookham Down, *Mill*. Wellington College, *Penny*.
Twyford, *Thorne*. Hurst, *Melvill*. Arborfield, *Taylor*. Sunning-
hill Bog. Bagshot Heath. Risely. Finchampstead Leas.
Pinkney's Heath.

Genista anglica is practically absent from the northern half of the county, but is not very rare on the heaths of the south.

G. anglica, which is one of the plants which are the first to disappear before cultivation, is recorded for all the bordering counties, except E. Gloucestershire, but is almost extinct in Oxfordshire.

G. tinctoria, Linn. Sp. Pl. 710 (1753). *Dyer's Green-weed*, *Wood Waxen*.

Genistella tinctoria, Gerard, 1134.

Top. Bot. 104. Syme, E. B. iii. 9, t. 328. Nyman, 153. Fl. Oxf. 74.

Native. Ericetal, pascual. Heaths, dry pastures, and borders of
marshes or bogs. Shrub. Local and rather rare. May-August.

First record. *Base broom* grows plentifully about Oxford, *MS. in Lyte's*
Herball, 1660. *G. tinctoria*, Dr. Noehden, *Mavor's Agr. Berks*, 1809.

1. **Isis**. Near Bablock Hythe, *Boswell*, 1860.

2. **Ock.** Near some old stone pits about half a mile south-west of South Hinksey, *Baxter MSS.* 1812. (Now probably extinct.) Didcot, *Boswell*. Tubney, *Walker*. On banks on the roadside on Blewbury Downs, &c., *Lousley in Russell's Cat.* 1839. Cumnor Hurst, *Richards*. Between Bradley and Deadman's Farm, *Thurland*. Cothill.
3. **Pang.** On the border of Beech Wood, Hampstead Norris, and by roadsides in many places, *J. Lousley*, l.c. Bradfield, *Jenkinson*! Compton Scrubs, *Hewett*, 1840. Bucklebury Common, *Tufnail*.
4. **Kenet.** Burghfield. Mortimer, *Tufnail*! Shaw, *Jackson*. Wickham, *Mrs. Batson*. Woodhay. Clay hill N.E. of Newbury, *Weaver*. Newbury Wash Common. By the railway near Mortimer Station. Near Crookham Heath.
5. **Loddon.** Near Wellington College, *Penny*! Waltham. Maidenhead. Blackwater. Near Jouldern's Ford, between the river and Finchampstead Leas, abundant but much injured by the June frost in 1892. Winkfield.

G. tinctoria is recorded for all the bordering counties.

ULEX, Linn. Gen. n. 786.

U. europaeus, Linn. Sp. Pl. 741. *Gorse, Furze, Whin.*

Top. Bot. 103. Syme, E. B. iii. 4, t. 323. Baxt. t. 93. Nyman, 148. Fl. Oxf. 72.

Native. Ericetal. Heaths and dry pastures. Widely distributed and locally common. Shrub. Jan.-April, and sometimes in the autumn.

First record. *U. Europaeus*. About Pusey and other parts of the county very luxuriant. Cut for faggots. Browsed by cattle.

A good fence in bleak situations, *Mavor in Agr. Berks*, 1809.

The Furze is too common in Berkshire to require the mention of any special localities. The severe winter of 1895 destroyed a large quantity of plants.

Ulex europaeus is common in all the bordering counties.

U. Gallii, Planchon in Ann. Sc. Nat. 3^{me} ser. xi. (1849) 213.

U. provincialis, Le Gall (Fl. Morbihan, 128) ex Planch. l. c. (1849). Not of Loiseleur. *U. nanus* var. *major*, Bab. Man. Brit. Bot. ed. 2, 72 (1847).

Top. Bot. 104. Syme, E. B. iii. 6, t. 324. Nyman, 148. Fl. Oxf. 73.

Native. Ericetal. Heaths and commons. Very local. Shrub. July-Oct.

First record. *U. Gallii*, Frilford. The author in *Fl. Oxfordshire*, 1886.

2. **Ock.** Frilford Heath.

3. **Pang.** Near Pangbourn. Near Curridge.

The specimen recorded as *U. Gallii* by Mr. Britten in the *Journ. Bot.* (1873), 138, from Early Common, collected by Mr. Rudge about 1800, is, I believe, *U. minor* (*nanus*).

Large specimens of *U. minor*, Roth, are often called *U. Gallii*, so named after Le Gall, author of the *Flore de Morbihan*, published in 1852. As the *Ulex provincialis* of Loiseleur Deslongchamps is synonymous with *U. parviflorus*, it is a question whether our plant should not be called *U. provincialis*, Le Gall. It is evident that the portion of the *Flore de Morbihan* in which it is described was printed before Planchon described it in the *Annals*, from the fact that the page is numbered as it appears in the published *Flora*. At any rate, the publication of the two names is synchronous.

U. Gallii is recorded for all the bordering counties except Bucks and Gloucestershire.

U. minor, Roth. Cat. i. 83 (1797). Dwarf Furze.

U. nanus, Forst. in Symon's Syn. 160 (1798). *Genista spinosa minor*, Park. 1003.

Top. Bot. 103. Syme, E. B. iii. 7, t. 325. Nyman, 148. Fl. Oxf. 73. Native. Ericetal. Commons and heaths. Locally abundant, especially on the heaths of the south-west of the county. Apparently absent from the Isis and Ock districts. Small shrub. July–October, and sparingly in the spring.

First record. *U. humilis*, Sunninghill, Sir Joseph Banks, 1773, in *Herb. Brit. Mus.* Published as *U. nanus* in Russell's *Newbury Cat.* 1839.

3. Pang. 'Cold Ash. No *U. Gallii* seen,' W. M. Rogers. Ashridge Wood. Pangbourn Marsh. Basildon. Oare Common. Bucklebury. Tilehurst.

4. Kennet. North Heath, and other places, Russell's Cat. 'Snelsmore Common. No *U. Gallii* seen,' W. M. Rogers. Mortimer, Tufnail. Crookham Common. Burghfield. Aldermaston. Greenham Common. Upton Wood. Newbury Wash. Inkpen. Wickham. Woodhay. Chieveley.

5. Loddon. Sunninghill, Banks. Bulmarsh and Early Common, Rudge in *Herb. Brit. Mus.* Bagshot Heath, Watson. Heathery spot outside gates of Hurst Grove, Melvill. Near Cumberland Lodge, Windsor Park, Bolton King. Bearwood. Near Loddon Bridge. Wellington College. Ambarrow. Long Moor. Shurlock Row. Risely. Finchampstead. Ascot Racecourse. Sunningdale. Bracknell. Windsor Park. Wokingham. Pinkney's Heath. Grounds of Sandhurst College. Near Binfield, &c.

A large form (*f. major*) is often mistaken for the preceding species.

U. minor is recorded for all the bordering counties, except E. Gloucestershire.

CYTISUS, Linn. Gen. n. 785 (Tournefort, Inst. t. 416).

C. scoparius, Link. Enum. Hort. Berol. ii. 241 (1822). Broom.

Spartium scoparium, Linn. Sp. Pl. 709 (1753). *Sarothamnus scoparius*, Koch, Syn. Fl. Germ. 152 (1837). *Genista vulgaris sive Scoparia*, Park. 228. *Genista*, Gerard, 1130.

Top. Bot. 103. Syme, E. B. iii. 11, t. 329. Nyman, 149. Baxt. t. 77. Fl. Oxf. 73.

Native. Sylvestral and ericetal. Sandy fields, coppices, heaths, &c. Locally common, but absent from considerable areas of the Clays and Chalk. Shrub. February–July.

First record. *Spartium scoparium*, Broom, *Mavor's Agr. Berks*, 1809.

1. **Isis.** Wytham. Pusey.

2. **Ook.** Bagley, *Baxter*, 1812. Wootton, *Boswell*. Tubney, *Walker*. Denchworth, *Wail*. Boar's Hill. Cothill. Chawley. Radley. Coles' Pits.

3. **Pang.** Streatley, *Pamplin*. Fence Wood, *Hewett*, 1839. Oare. Langley. Cold Ash Common. Bucklebury. Bradfield. Hawkridge Wood. Ashampstead. Yattendon. Dark Lane Copse. Curridge, &c.

4. **Kennet.** Mortimer, *Tufnail*. Sandleford, *Weaver*. Burghfield. Aldermaston. Hampstead Marshall. Newbury Wash. Greenham Common. Inkpen. Snelsmore. Ufton. Padworth. Pebble Hill. Wickham Heath. Tilcombe Green, &c.

5. **Loddon.** Remenham, *Stanton*. Risely. Finchampstead. Hurst Grove, *Melville*. Windsor Park, *Bolton King*. Ambarrow. Wellingington. Sandhurst. Bagshot. Sunningdale. Ascot. Windsor Park. Bracknell. Wokingham. Bearwood. Early Heath. Coleman's Moor. Sonning Cutting. Hurst. Arborfield. Winkfield. Farley Hill. Spencer's Wood Common. Ashley Hill. Stubbing's Heath. Pinkney's Heath. Cookham, &c.

A prostrate variety or form, var. *prostrata* (Bailey), occurred near Coleman's Moor, but it is not such an extreme form as the Cornish maritime plant. In some of the more northern localities the Broom has probably been planted.

C. scoparius occurs in all the bordering counties.

ONONIS, Linn. Gen. n. 772 (*Anonis*, Tournefort, Inst. t. 408).

O. repens, Linn. Sp. Pl. 717 (1753). *Rest Harrow, Cammock*.

O. inermis, Huds. Fl. Angl. 312 (1778).

Top. Bot. 105. Syme, E. B. iii. 16, t. 331. Nyman, 161. Fl. Oxf. 74.

Native. Pascual. Dry fields, roadsides, &c. Not uncommon. P. May–August.

First record. *Anonis purpurea repens non spinosa provenit . . . praecipue circa Oxonium*, *Morison, Hist. Ox.* ii. 171, 1680. Sonning, *Mr. S. Rudge, in Herb. Brit. Mus.* 1800.

1. **Isis.** Wytham. Ashbury. Idstone. Bourton. Faringdon. Pusey. Besilsleigh. Cumnor. Eaton Stibble.

2. **Ook.** South Hinksey, *Baxter*, 1827. Tubney, *Walker*. Jenny Bunting's Parlour. Cothill. Sandford. Wootton. Uffington.

Pusey. Marcham. Abingdon. Wittenham. Lockinge. Wantage. Wallingford. Blewbury. Didcot, &c.

3. **Pang.** East Ilsley, *Hewett*, 1840. Streatley, *Pamplin*. Beedon Common, *W. M. Rogers*. Tilehurst. Pangbourn Marsh, *Tufnail*. Moulsoford. Basildon. Sulham. Bradfield. Yattendon. Frilsham. Reading. Aldworth, &c.
4. **Kennet.** Beedon, *W. M. Rogers*. Near Ham Mill Lane, Newbury, *Weaver*. Riever Wood. Inkpen. Newbury. Lambourn. Fawley. Sheffield. Theale. W. Ilsley. Woolhampton. Englefield, &c.
5. **Loddon.** Marlow, occasionally, *Mill*. Sonning, *Rudge*. Remenhurst, abundant, *Stanton*. Wargrave, *Melville*. Loddon Bridge. Finchampstead. Cookham. Wargrave. Bisham. Hurley. Bray. Old Windsor, &c.

Ononis repens is found in all the bordering counties. It is much more frequent in Berks than the above records would suggest.

O. spinosa, Linn. Sp. Pl. 716 (1753). *Field Rest Harrow.*

O. campestris, Koch and Ziz, Cat. Pl. Palat. 22, not of Sieber. *Anonis sive Resta Bovis*, Gerard, 1141. *O. antiquorum*, Linn. Baxt. t. 289.

Top. Bot. 105. Syme, E. B. iii. 15, t. 330. Nyman, 162. Fl. Oxf. 75. Native. Pascual, &c. Barren pastures, borders of fields and roadsides. Locally common and scattered over the county. P. June–September.

First record. *O. spinosa*. Thorny rest Harrow . . . frequent, *Mavor's Agr. Berks*, 1809.

1. **Isis.** Ashbury. Faringdon. Longworth. Near Bablock Hythe.
 2. **Ock.** Near Abingdon, *Whitwell*. Tubney, *Walker*. Near Oxford, *Boswell*. Wootton. Boar's Hill. Cherbury Camp. Uffington. Steventon. Didcot. Marcham. Near Radley. Kennington. Cholsey, &c.
 3. **Pang.** Langley. Ilsley Downs, *W. M. Rogers*. Streatley, *Tufnail*. Pangbourn. Hampstead Norris.
 4. **Kennet.** Compton. Near Inkpen. Hungerford. Fawley. Crookham Heath, &c.
 5. **Loddon.** Wargrave, *Melville*. Bray. Hurst Hill.
- O. spinosa* is found in all the bordering counties.

TRIGONELLA, Linn. Gen. n. 804 (*Foenum graecum*, Tournefort, Inst. t. 270).

T. purpurascens, Lam. Fl. Fr. ii. 590 (1778). *Bird's Foot Trefoil.*

T. ornithopodioides, DC., Fl. Fr. iv. 550. *Trifolium M. ornithopodioides*, Linn. Sp. Pl. 766.

Top. Bot. 109. Syme, E. B. iii. 34, t. 145. Nyman, 171. Fl. Oxf. 76. Native. Ericetal. Grassy heaths. Very rare. A. April–May.

First record. *Trifolium Ornithopodii siliquis*. Bird's Foot Trefoil. Also near Oxford in the like ground [among the corn], *Ray's Cat.* ed. 2, 291, 1677. *T. melilotus ornithopoides*, Dr. Noehden. Mr. Bicheno, Greenham Heath, *Mavor's Agr. Berks*, 1809.

4. Kennet. Greenham Common, Mr. Bicheno. I saw it there in 1893.

The plant was probably inserted in Ray's *Catalogus* on the authority of Mr. Willisel, and the record is repeated in the *Stirpium* and *Synopsis*, and by Hudson, Gough, Martin, Smith, and other writers; but no botanist, as far as I can discover, has observed the plant in the neighbourhood of Oxford since Ray's time, and it has not been reported for Bucks or East Gloucestershire, but is recorded for Surrey, Hants, and Wiltshire.

****T. FOENUM-GRÆCUM**, Linn. Sp. Pl. 777 (1753). *Fenugreek*.

Comp. Cyb. Br. 498. Nyman, 170.

Casual. Waste ground at Grandpont and Didcot.

*****T. CAERULEA**, Seringe in DC., Prod. ii. 181 (1825).

Trifolium M. caerulea, Linn. Sp. Pl. p. 764 (1753). Nyman, 171.

Casual. Waste ground at Newbury Station, *Weaver*. Grandpont. Didcot. Greenham.

****T. BESSERIANA**, Seringe, l.c. Reichb. Ic. Pl. Crit. iv. f. 525 (1826). Nyman, 171.

Casual. Waste ground, Newbury, *Weaver*. Didcot. Greenham.

Reichenbach treats this as a variety of the former species; it differs from it by its laxer head of flowers and much narrower leaves, which are more sharply auriculate; also by the narrower stipules and straighter beak of the fruit.

MEDICAGO, Linn. Gen. n. 805 (Tournefort, Inst. t. 231).

***M. sativa**, Linn. Sp. Pl. 778 (1753). *Lucerne, Purple Medick*.

Medica sativa, Lugd. *Medica*, Pliny.

Cyb. Br. i. 283. Syme, E. B. iii. 21, t. 334. Baxt. t. 329. Nyman, 166. Fl. Oxf. 76.

Denizen. Fields, waysides, railway-banks, &c. P. May-September.

First record. *M. sativa*, Dr. Noehden. Highly deserving of cultivation, *Mavor's Agr. Berks*, 1809.

2. Ock. South Hinksey. Wootton. Abundant by the railway at Didcot, and varying from pale to deep blue. Wantage. Abingdon. Upton.

3. Pang. Moultsford. Basildon. Ilsley. Sulham. Purley. Frilsham. Yattendon.

4. Kennet. Newbury. Shefford. Sulhampstead. Theale. Reading. W. Ilsley. Woolhampton.

5. Loddon. Near Wellington College, Penny. Wargrave, Britt. Contr. Near Henley, Stanton. Maidenhead. Twyford. Old Windsor.

As a more or less naturalized plant the Lucerne is found in all the bordering counties.

****M. FALCATA**, Linn. Sp. Pl. 779 (1753). *Yellow Medick*.

Top. Bot. 107. Syme, E. B. iii. 24, t. 336. Nyman, 166. Fl. Oxf. 76. Casual. Waste places. Rare. On rubbish heaps at Grandpont, 1892. On the side of the railway near Oxford in Berkshire, 1893.

A native only of the eastern counties of England. The record in *Withering's Bot. Arr.* ed. 5, iii. 811, of 'hedge-side from Sudbourn to Oxford, *Rev. G. Crabbe*,' is probably a misprint for Orford in Suffolk.

The specific name is spelt with a capital letter, because Rivinus used it as the name of a genus.

M. lupulina, Linn. Sp. Pl. 779 (1753). *Black Medick, Melilot Trefoil*.

Trifolium luteum Lupulinum, Ger. Em. 1186. *Lupulinum minimum*, Rupp.

Top. Bot. 107. Syme, E. B. iii. 25, t. 337. Nyman, 170. Fl. Oxf. 76. Native. Agrestal, &c. Fields, waysides, wall-tops, heaths, &c. Very common and generally distributed. A. or B. May–August.

First record. *M. lupulina*, *Melilot Trefoil*, Dr. Noehden, *Mavor's Agr. Berks*, 1809.

Var. *WILLDENOWII* (Boenn. Prod. Fl. Monast. 226 as a species), which has glandular hairs on the fruit, has been noticed at South Hinksey, Boar's Hill, Didcot, Haws Hill, Ruscombe, &c. The common plant has glabrous or only slightly hairy fruit. The var. *unguiculata*, Seringe, DC. Prod. ii. 172, is a monstrosity with foliaceous calyces, and has been observed in Sonning Cutting.

A very pubescent leaved form occurs on some of our heathlands.

The cultivated plant is figured in Sutton's *Perm. and Temp. Pastures*, t. xxii (1891).

M. lupulina occurs in all the bordering counties.

****M. DENTICULATA**, Willd. Sp. Pl. iii. 1414 (1800). Syme, E. B. iii. 26, t. 338. Casual. Waste ground. Very rare. A. June.

A few specimens have been found on waste ground at Didcot. Mr. Jackson has seen it as a casual at Newbury.

It occurs in the Isle of Wight and in Surrey.

M. arabica, Huds. Fl. Angl. 288 (1762). *Heart Clover*.

M. polymorpha, var. *arabica*, Linn. Sp. Pl. 780 (1753). *M. cordata*, Desr. ap. Lam. Enc. Méth. iii. 636. *M. maculata*, Sibth. Fl. Ox. 232 (1794). *Trifolium cordatum*, Ger. Em. 1190.

Top. Bot. 107. Syme, E. B. iii. 27, t. 339. Nyman, 169. Curt. Fl. Lond. iii. t. 47. Fl. Oxf. 76.

Colonist. Waste places. Very local. A. or B. June–August.

First record. *Medicago arabica*. Heart Trefoil by no means rare in the upper part of the county. Partially cultivated. This plant, though indigenous, has probably never been cultivated except in Berkshire, and its history is remarkable. In his voyage round

the world, Captain Vancouver found some seeds in a vessel which had been wrecked on a desert island, and on his return he presented some of them to his brother, then residing near Newbury. . . . The seeds were sown, expectation was raised ; Dr. Lamb and Mr. Bicheno, with the vigilance of botanists, watched their progress, and were in hopes to have been able to announce to the agricultural world a valuable plant from the remotest island of the Pacific, when, lo ! it turned out to be the *Medicago arabica*, which is a native plant of Berkshire. It was found to produce a luxuriant herbage, and cattle were extremely fond of it. *Mavor's Agr. Berks*, pp. 263, 290-291, 1809.

5. **Loddon.** In the Home Park and in the meadow near Windsor, *Everett*. It is also very plentiful in the private portion of Windsor Park, where it seeds freely in the spring and the seeds germinate, so that the plants appear in the autumn and last through the winter. Thus the plant may be biennial.

I find Mr. Bolton King noticed this species at Old Windsor when he was at Eton College in 1876-8.

It has been found in Oxfordshire, Surrey, Hants, Wilts, and W. Gloucestershire.

MELILOTUS, Adans. Fam. ii. 322 (1763) (Tournefort, Inst. t. 406).

M. officinalis, Lam. Fl. Fr. ii. 594 (1778). *Melilot*.

M. altissima, Thuill. Fl. Par. ed. 2, 378 (1799). *Trifolium M. officinalis*, Linn. Sp. Pl. 765. *Melilotus Germanica*, Ger. Em. 1205.

Top. Bot. 108. Syme, E. B. iii. 29, t. 341. Nyman, 172. Baxt. t. 363. Fl. Oxf. 77.

Native. Viatical, septal. Fields, hedge-banks, waste places, open spots in woods, railway-banks, and newly turned-up soil. Rather common. A. or B. June-October.

First record. *Melilot* groweth plentifully about Oxford, *MS. in Lyte's Herball*, 1660. *Trifolium melilotus officinalis*, *Mavor's Agr. Berks*, 1809.

1. **Isis.** Near Buscot, *Bellamy*. Pusey. Near Wytham.
2. **Ock.** About Oxford, *MS. in Lyte*. Between South Hinksey and Childswell Farm, *Baxter*, 1827. In a copse just beyond Botley Pound, *Baxter*, *Phæn. Bot*. In wet furrows in the arable fields about Blewbury. In Blewbury meadows, &c., *Lousley*, in *Russell's Cat*. Marcham, *Walker*. Sparsholt Enclosure, *Bellamy*. On gravel dredged out of the river Thames near Oxford, *Richards*, 1892. On the Abingdon Road, near Oxford, *Druce*, in *Rep. of Bot. Exch. Club*, 1888. Denchworth, *Wait*. Childswell Farm. Abundant about Uffington and Wantage. venton. Didcot. Wittenham, near to Day's Lock. Radley Abingdon. Cholsey.

3. Pang. Ilsley, *Hewett*, 1840. Ashridge Wood. Tidmarsh. Moulshurst. Purley. Tilehurst. Bucklebury. Reading.
4. Kennet. Newbury. Woolhampton. Theale.
5. Loddon. New Lock, Marlow, *Mill*. Wargrave, *Melville*. Well. Coll. List. Ruscombe. Maidenhead. Cookham. Aston. Old Windsor.

Melilotus officinalis occurs in all the bordering counties. The fragrance of the leaves is due to the presence of coumarin.

**M. arvensis*, Wallr. Sched. Crit. 391 (1822).

M. officinalis, Desr. in Lam. Enc. Méth. iv. 63 (1797), not of Lam. Fl. Fr.

Top. Bot. 109. Syme, E. B. iii. 32, t. 343. Nyman, 172. Fl. Oxf. 78. Colonist. Viatical. Rubbish heaps, waste ground. In several scattered localities. A. or B. July–September.

First record. *M. arvensis*. Chalk pit between Wargrave and Henley. *Britt. Contr.* 1871.

1. Isis. Near Wytham.
2. Ock. Near Letcombe Castle, *Bellamy*. Didcot. Wantage. Grandpont.
3. Pang. Railway near Reading.
4. Kennet. Newbury, 1891.
5. Loddon. Chalk pit between Wargrave and Henley, *Britten*. Near Windsor, one plant, *Bolton King*. Maidenhead.

M. arvensis has been recorded for Oxfordshire, East Gloucestershire, Surrey, Hants, and Wiltshire.

In *Index Kewensis*, *M. officinalis* is cited from Lamarck's *Fl. de Franc.* and from Desrousseaux in the *Enc. Méth.*

***M. ALBA*, Desrousseaux in Lam. Enc. Méth. iv. 63 (1797). *White Melilot*.

M. leucantha, Koch, DC. Fl. Fr. v. 790. *M. vulgaris*, Willd. Enum. Hort. Berol. 790.

Top. Bot. 109. Comp. Cyb. Br. 140. Syme, E. B. iii. 31, t. 342. Nyman, 172. Fl. Oxf. 77.

Casual. Rare. A. or B. May–August.

First recorded by Mr. A. Grey in *Wellington College List*, 1874.

2. Ock. South Hinksey, *The author in Fl. Oxf.* 1886. By the railway near Maidenhead, very luxuriant, some specimens being over six feet high. Didcot.
3. Pang. In a field near the railway between Reading and Tilehurst.
4. Kennet. Newbury, by the railway.

Bucks and East Gloucestershire appear to be without records for this species.

***M. INDICA*, All. Fl. Ped. i. 308 (1785).

M. parviflora, Desf. Fl. Atl. ii. 192 (1800). (*Trifolium M. indica*, Linn. Sp. Pl. 765 (1753), is referred to *M. mauritanica* in *Index Kewensis*.)

Comp. Cyb. Br. 408. Syme, E. B. iii. 33, t. 344. Nyman, 173. Fl. Oxf. 78.

Casual. Waste ground. Rare. A. July–August.

First found in Berkshire by the author in 1890.

1. **Isis.** Near Wytham Mill.
2. **Ock.** Grandpont, *Elwell*. Abingdon. Didcot.
3. **Pang.** Near Pangbourn, by the side of the railway
4. **Kennet.** Newbury.
5. **Loddon.** Fields near Sonning Railway-bridge, *Tufnail*.

TRIFOLIUM, Linn. Gen. n. 802 (Tournefort, Inst. t. 228).

T. subterraneum, Linn. Sp. Pl. 767 (1753), and of Rivinus. *Dwarf Trefoil*.

T. album tricocon subterraneum Gastonium reticulatum, Morison, Hist. Ox. ii. 138 (1680).

Top. Bot. 109. Syme, E. B. iii. 36, t. 346. Nyman, 177. Curt. Fl. Lond. ii. t. 54. Fl. Oxf. 80.

Native. Glareal. Gravelly commons. Very local and rare. A. May-June.

First recorded by Mr. W. Pamplin in *Phyt.* v. 155, 1854.

2. **Ock.** Marked by Mr. F. Walker in his list of plants seen about Marcham and Tubney. The district is a very probable one, but I have as yet been unable to verify the record.

3. **Pang.** Included in Mr. Pamplin's list of plants observed about Streatley and Goring, but as no specific locality is given, it is uncertain whether the plant occurred in Berkshire or Oxfordshire. But I have still greater doubts as to the correctness of the identification, for at that time Mr. Pamplin had by no means a critical knowledge of British plants, and his list contains several misnomers, of which this is probably one. At any rate the record needs verification.

5. **Loddon.** Included in the Wellington College List, but here again I am afraid with insufficient foundation. Near Hurst, 1875, *Melville*. Rather plentiful over a limited area of Bircher's Green between Twyford and Maidenhead, 1892-6.

The heaths of the Kennet valley have been repeatedly searched by me for this species without success. After the flowering is over it becomes much less conspicuous; but if it occurs there, and more suitable localities could not be desired, it must be very local.

T. subterraneum has been found in Surrey, Hants, and Wilts, in Buckinghamshire, in which county Sir Jos. Banks gathered it at Salt Hill about the year 1780, and in Oxfordshire, where it appears to be now extinct.

A decreasing species in the inland counties owing to cultivation.

T. pratense, Linn. Sp. Pl. 769 (1753), and of Gerard, 1017. *Red Clover*.

Top. Bot. 110. Syme, E. B. iii. 37, t. 347. Nyman, 173. Baxt. t. 283. Fl. Oxf. 78.

Native. Pratal. Meadows, pastures, waysides, railway-banks, &c. Common and generally distributed. B. or P. May-October.

First record. *T. pratense*. Honeysuckle Trefoil, Dr. Noehden, *Maror's Agr. Berks*, 1809. With white flowers in a pasture about four miles from Oxford, on the right-hand side of the road to Eynsham, *Baxter, in Herb. Oxf.* With *Sphaeria Trifolii* and *Polythrincium Trifolii* parasitic on the leaves of this and other species of *Trifolium* about Oxford, *Baxl. Phaen. Bot.* 283, 1839.

Var. *SATIVUM*, Schreber, in Sturm's *Deutsch. Fl.* heft 15, t. 12, Sutton's *Perm. and Temp. Pastures*, 1891, t. xix, is the plant which is extensively cultivated for fodder; this is often found on the borders of fields, &c. White or pale-flowered forms of the cultivated plant are occasionally found.

Var. *SYLVESTRE*, Syme, is the native plant which is common throughout the country, but is very rarely found with white flowers.

Var. *PARVIFLORUM*, Bab. *Man. Brit. Bot.* 72 (1843), in which the calyx teeth exceed the corolla (which is smaller than usual) in length, has been noticed in fields near Hen Wood, at Arborfield, and at Didcot.

The Red Clover is too common to require the mention of localities; it is found in all the bordering counties.

T. medium, Linn. *Amoen. Acad.* iv. 105 (1759), and Huds. *Fl. Angl.* 284 (1762). *Zigzag Clover*.

T. purpureum majus, Ray, *Syn.* 328. *T. flexuosum*, Jacq. *Fl. Austr.* t. 386. *Top. Bot.* 110. Syme, *iii.* 40, t. 348. Nyman, 173. *Fl. Oxf.* 78. Native. Septal. Hedge-banks, rough borders of meadows and woods.

Local and rather rare. P. June-September.

First record. *T. medium*. Sonning, *Mr. S. Rudge, Herb. Brit. Mus.* 1800. South Hinksey, *Mr. Baxter, MSS.* 1812.

1. **Isis.** On the left-hand side of the road going up Cumnor Hill.
2. **Ock.** South Hinksey, *Baxter*, 1812. On the left-hand side of the road going up the hill to Bagley Wood from Grandpont. Boar's Hill. Frilford.
3. **Pang.** Bradfield, *Jenkinson*. Caversham Meadows, on ballast, *Tufnaill*. On chalk ballast between Reading and Tilehurst.
5. **Loddon.** Sonning, *Rudge*. Wargrave, *Melville, in Britt. Contr.* 1871. In a little wood near Hurley, *Stanton*. Between Early and Wokingham. On the railway-banks between Wokingham and Wellington College Station. Near Loddon Bridge. Near Ascot Racecourse.

T. medium occurs in all the bordering counties.

[**T. ochroleucum**, Huds. *Fl. Angl.* 283 (1762). *T. ochroleucum*, Huds. *Fl. Angl.* ed. 2 (1778). Syme, *E. B.* *iii.* 41, t. 349. Nyman, 174.

A species of eastern England recorded for Surrey, but with some doubt as to its correctness.]

****T. INCARNATUM**, Linn. Sp. Pl. 769. *Crimson Clover.*

Comp. Cyb. Br. 498. Syme, E. B. iii. 44, t. 352. Nyman, 174. Fl. Oxf. 78. Alien. On the borders of fields, as an escape from cultivation. Local. A. April–August.

First record. The only localities in which I have met with *T. incarnatum* are Snelsmore and Greenham Commons near Newbury, where in 1838 it grew in the turf not far from the roadside in many parts of the Commons, and by an inexperienced botanist, who was not aware of the plant being cultivated in the neighbourhood, would certainly have been supposed to be wild. . . . It grew in a scattered manner, and was always very starved and stunted in its growth, Anna Worsley (Russell), in *Phyt.* 236, 1843.

1. **Isis.** Near Cumnor.
2. **Ook.** Between Foxcombe and Bayworth, *Sister Jane Frances*. North Moreton. Cholsey. Shippon. Frilford.
3. **Pang.** Moulsoford. Basildon. Sulham. Hermitage.
4. **Kennet.** Snelsmore. Greenham, *Russell*. Near Southcote, by the roadside. Near Snelsmore. Wargrave, *Melville*.
5. **Loddon.** Wellington College, *Penny*. Maidenhead. Twyford. Wargrave. Sonning. Cookham. Winter Hill.

This plant is frequently cultivated on the Lower and Upper Greensand, and a field of it in full flower is a very beautiful sight.

With the red-flowered plant a white-flowered form is occasionally to be met with, the var. *STRAMINEUM*, Presl, not *T. Molinerii*, Balbis, Cat. Hort. Taur. 1813.

Messrs. Sutton sell large quantities of the white-flowered *Trifolium*, which has the advantage of coming into use a little later than the ordinary red *Trifolium*, and affords a successive crop.

T. arvense, Linn. Sp. Pl. 769 (1753). *Harve's-foot Trefoil.*

Trifolium arvense humile spicatum sive Lagopus, C. B. Pin. 328.

Top. Bot. 111. Syme, E. B. iii. 46, t. 354. Nyman, 175. Fl. Oxf. 79. Native. Glareal. Sandy fields, commons, and heaths. Local, but abundant where it occurs. A. May–September.

First record. Sonning, *Mr. S. Rudge*, in *Herb. Brit. Mus.* 1800. (Still there in 1896.) Given without locality in *Russell's Newbury Cat.* 1839.

2. **Ook.** Wootton, *Boswell*. Boar's Hill, *Whitwell*. Tubney, *Walker*. Sunningwell. Frilford. Didcot.
3. **Pang.** Hermitage. Between Tilehurst and Reading.
4. **Kennet.** Newbury, *Russell*, l.c. Near the Wash Common. Aldermaston. Padworth by the side of the railway. Near Reading.
5. **Loddon.** Sonning, *Rudge*. Near Boyne Hill, *Britten*. Wellington College, *Penny*. Remenham, *Stanton*. Windsor, *Bolton King*. Ambarrow. Bracknell. Ascot. Gravel-pit near Twyford. Maidenhead. Bray Wick. Abundant in Sonning Cutting. Near Loddon Bridge. Near Reading.

Plants approaching the var. *strictius*, Koch, Syn. Fl. Germ. i. 188 (1843), were found in 1890 near Loddon Bridge, and Mr. Tufnail has seen it in Sonning Cutting.

T. arvense occurs in all the bordering counties.

T. striatum, Linn. 770 (1753). *Soft Knotted Clover.*

Top. Bot. 112. Syme, E. B. iii. 48, t. 356. Nyman, 176. Fl. Oxf. 79. Native. Glareal. Dry pastures, commons on gravelly or sandy soil; local and rare. A. June–August.

First recorded by the author in the *Flora of Oxfordshire*, 1886.

2. **Ock.** Cothill. Frilford. Boar's Hill, in the lane leading to Sunningwell.

3. **Pang.** Near Bradfield.

4. **Kennet.** Stroud Green, *Jackson*. Ballast heaps near the Kennet's mouth, Reading, *Tufnail*.

5. **Loddon.** Well. Coll. List. Old Windsor, *Bolton King*. Swallowfield, *Tufnail*. Near Loddon Bridge. Twyford in a brickfield near the railway-bridge. Spencer's Wood Common.

Var. *erectum*, Leighton, Fl. Shropshire, 363 (1841), occurs near Frilford. See *Rep. Bot. Exch. Club*, 1888.

T. striatum does not appear to be recorded for E. Gloucestershire.

T. scabrum, Linn. Sp. Pl. 770 (1753). *Rough Trefoil.*

Top. Bot. 112. Syme, E. B. iii. 49, t. 357. Nyman, 176. Fl. Oxf. 79. Native. Glareal. Dry fields and commons. Local and rare. A. May–August.

First recorded by the author in the *Rep. Bot. Rec. Club*, 1881; see *Flora of Oxfordshire*, 1886.

2. **Ock.** Tubney, on a sandy common.

3. **Pang.** Near Bradfield, very rare.

5. **Loddon.** Formerly found on ground occupied by brickyards near Twyford.

This plant is one of our rarest species; the strongly curved lateral veins of the leaflets assist in distinguishing it from the preceding species.

T. scabrum is recorded for all the bordering counties except Buckinghamshire.

****T. LAPPACEUM**, Linn. Sp. Pl. 768 (1753). Sibth. Fl. Graeca, t. 746, excl. anal. Casual. On waste ground near Didcot Railway. A Mediterranean species.

[**T. GLOMERATUM**, Linn. Sp. Pl. 770 (1753). Syme, E. B. iii. 50, t. 358. Nyman, 179. Is recorded for Surrey and South Hampshire.]

[**T. SUFFOCATUM**, Linn. Mantissa, ii. 276. Syme, E. B. iii. 51, t. 359. Nyman, 179. Recorded for South Hampshire; it is a species usually found near the sea.]

***T. hybridum**, Linn. Sp. Pl. 766, var. b. (1753). *Alsike Clover.*

Comp. Cyb. Br. 498. Syme, E. B. iii. 53, t. 361. Nyman, 178. Fl. Oxf. 80.

Alien. Colonist. Roadsides, cultivated ground, fallow fields, railway-banks, &c. Not infrequent and widely distributed. B. June–August.

First record. Roadsides about new houses near Sunninghill (Ascot) Station; doubtless introduced. Mr. H. C. Watson in *Britt. Contr.* 1871.

1. **Isis.** Near Lechlade. Pusey. Besilsleigh. Appleton. Cumnor, &c.
2. **Ock.** Wantage. Didcot. Upton. Wootton. Cothill. Frilford. Cholsey. Kennington. Wittenham, &c.
3. **Pang.** Near Beedon, *W. M. Rogers*. Sulham, *Tufnaul*. Hermitage. Basildon. Bradfield. Moulsoford. Standford Dingley. Bucklebury, &c.
4. **Kennet.** Padworth. Theale. Kintbury. Hungerford. Lambourn. Chilton Foliat. Newbury. Mortimer. Near Reading, &c.
5. **Loddon.** Ascot, *H. C. Watson*. Wargrave, *Britten*. Twyford. Maidenhead. Barkham. Finchampstead. Arborfield. Sonning. Windsor, &c.

Var. **ELEGANS** (Savi, Fl. Pis. ii. 161, as a species). This is said to be distinguished by its solid stem, decumbent at the base, and smaller head of flowers, which are longer pedicelled than those of the true *T. hybridum*, which has a hollow and more ascending stem and larger flower-heads. The variety is found by roadsides, &c., in many localities throughout the county. The true *T. hybridum*, figured in Sutton's *Perm. and Temp. Pastures*, t. xxi (1891), is the commonly cultivated plant which may be found as an escape by field borders and on rich waste ground in all the districts where it degenerates into the var. *elegans*. Syme in *E. B.* says that the stipules are fewer nerved in true *T. hybridum*, but I have usually found the hollow-stemmed plant to have stipules with more numerous veins than the solid-stemmed plant which is supposed to be *T. elegans*, Savi; it may be that we have only the wild form of *T. hybridum* and not the true *T. elegans*, which is considered by many continental botanists as a distinct species. I must confess to being able to see no specific distinction in the two Berkshire forms mentioned, the differences in which appear to be owing to the plants growing in a richer or in a poorer soil. This also appears to be the opinion of M. Crépin; see *Notes sur quelques Plantes Rares ou Critique de la Belgique*, fasc. ii. 20.

T. hybridum is found in all the bordering counties.

T. repens, Linn. Sp. Pl. 767 (1753). *Dutch Clover, White Clover.*

Top. Bot. 109. Syme, *E. B.* iii. 55, t. 362. Nyman, 178. Fl. Oxf. 81. Native. Pascual. Meadows, pastures, waysides, &c. Widely distributed and one of our commonest species. P. May-October.

First record. *Trifolium pratense capite sertaceo*. In the meadows seven miles on this side Oxford, *Merrett's Pinax*, 121, 1666. *T. repens*, Dr. Noehden, *Mavor's Agr. Berks*, 1809.

Var. **PHYLLANTHUM**, Seringe, DC. Prod. ii. 199, in which the calyces have become foliaceous, is recorded by Merrett in the *Pinax*, and is not unfrequent, especially in wet seasons.

The cultivated plant is figured in Sutton's *Perm. and Temp. Pastures*, t. xviii (1891).

T. repens is common in all the bordering counties.

T. fragiferum, Linn. Sp. Pl. 772 (1753), and of Ger. Em. 1208.
Strawberry-headed Clover.

Top. Bot. 113. Syme, E. B. iii. 58, t. 363. Nyman, 177. Fl. Oxf. 80.
Native. Pascual. Roadsides chiefly on clayey soil where water has stood for a time, dampish meadows, &c. Not uncommon and widely distributed. P. July–September.

First record. Near Streatley, Mr. W. Pamplin in *Phyt.* 155, 1854.

1. **Isis.** By the side of the Eynsham Road.

2. **Ock.** Tubney, *Wa'ker*. Abingdon. Radley, *Fl. Oxf.* Uffington. Marcham, abundant. Near Radley. Shippon.

3. **Pang.** Streatley, *Pamplin*, l.c.

4. **Kennet.** Newbury, *Jackson*. Theale, *Tufnail*. Padworth. Sande-
ford. Near Bagnor.

5. **Loddon.** Thames meadows, Cookham, &c., *Britt. Contr.* Cook-
ham Marsh, *Chandler*, in *Herb. Brit. Mus.* 1864. Sonning meadows,
very plentiful. Ruscombe.

T. fragiferum occurs in all the bordering counties.

****T. RESUPINATUM**, Linn. Sp. Pl. 771 (1753).

Comp. Cyb. Br. 498. Syme, E. B. iii. 59, t. 364. Nyman, 177.
Casual. Waste places. Rare.

4. **Kennet.** Greenham, near Newbury, *Jackson*.

Our specimens appear to belong to the var. *minus*, Boiss. Fl. Orient. ii. 137,
which is a much smaller plant than the var. *majus*, Boiss. *ibid*.

****T. AGRARIUM**, Linn. Sp. Pl. 772 (1753).

Reichb. Ic. Fl. Germ. et Helv. xxii, t. 2170. Nyman, 180. Fl. Oxf. 81.
Casual. Cultivated fields. Rare. A. June–September.

2. **Ock.** Fields near Wootton, 1888, now extinct.

5. **Loddon.** Wellington College, *Penny*.

T. procumbens, Linn. Sp. Pl. 772 (1753). *Hop Trefoil.*

T. agrarium, Huds. Fl. Angl. 386 (not of Linnaeus). *Lupulinum*, Riv.
Tetr. Irr. 10.

Top. Bot. 114. Syme, E. B. iii. 60, t. 365. Nyman, 180. Fl. Oxf. 81.

Native. Pascual. Cornfields, fallow fields, dry pastures, railway-
banks, gravel-pits, &c. Generally distributed and locally common.
A. April–August.

First recorded by Dr. Beeke in a letter written in 1800 to Sir James
Smith, in the possession of the Linnean Society.

Published as *T. procumbens* in *Mavor's Agr. Berks*, 1809.

It varies considerably in size; the extremes have received specific names; the smaller form is *T. pseudo-procumbens*, Gmelin, Flora Baden, iii. 240, the larger is *T. campestre*, Schreber in Sturm, Deutschlands Flora, heft 16, 1804, but they have been reduced in Koch, Syn. Fl. Germ. 175 (1837), to the varieties *minus* and *major*. The var. *minus* has much smaller heads of sulphur-coloured flowers, peduncles often twice as long as the leaf, and a more procumbent stem; the var. *MAJUS* has larger heads of golden yellow flowers, the stems are more erect with patent branches, and the peduncles sub-equal to the leaf. This variety recalls *T. agrarium* in habit; it has been noticed at Wootton, Padworth, W. Ilsley, and in other places. The letter of Dr. Beeke describing the three trefoils is printed in the Botanologia of Berks. A dwarf form was found in Sonning Cutting in 1890, in which the calyx and corolla were foliaceous, but the same plant had also normal flower-heads.

T. procumbens is found in all the bordering counties.

T. dubium, Sibth. Fl. Oxon. 231 (1794). *Yellow Suckling Trefoil*.

T. minus, Relhan, Fl. Cantab. ed. 2, 290 (1802). *T. filiforme*, Linn. Fl. Suec. ed. 2, 261, not of Sp. Pl. 773.

Top. Bot. 114. Syme, E. B. iii. 62, t. 366. Nyman, 180. Fl. Oxf. 81. Native. Pascual. Meadows, pastures, on sandy and gravelly soil; generally distributed, having been noticed by me in many localities in every district. A. April–August.

First recorded by Dr. Beeke in a letter to Sir James Smith, dated 1800, and describing the specimens gathered at Ufton, of which he sent Smith two varieties labelled *T. procumbens*, No. 2 and No. 3. These varieties, he thinks, are permanent.

Both the specimens are *T. dubium*, and are mentioned by Smith in the *English Flora*, iii. 311, 1825, where he says that ‘Dr. Beeke favoured me with specimens of the plants in question from the same dry, flinty, gravelly natural pasture at Ufton, where the larger variety of *T. minus*, with its succulent stem, retained all its diversity of habit and remained constant when propagated by seed.’ See also E. B. 1804.

The calyces of *T. dubium*, like those of *T. repens*, sometimes become foliaceous; such a form occurred at Hinksey.

T. dubium is found in all the bordering counties.

T. filiforme, Linn. Sp. Pl. 773 (1753), and Herb. *Small Trefoil*.

T. lupulinum minimum, Morison, in Ray, Syn. 331, t. 14, f. 4.

Top. Bot. 114. Syme, E. B. iii. 63, t. 367. Nyman, 180. Fl. Oxf. 81. Native. Ericetal. Heathy commons, dry sandy pastures, and also in peaty places. Locally common, but absent from considerable areas of the county. A. May–August.

First recorded by *Dr. Beeke* in a letter to Sir James Smith, dated 1800. The specimen referred to was gathered at Ufton, and is in *Herb. Smith*, in the possession of the Linnean Society. See *Smith's English Flora*, l.c., &c. *T. filiforme*, *Dr. Noehden*, *Mavor's Agr. Berks*, 1809.

1. *Isis*. Wytham.
2. *Ock*. Frilford, *Fl. Oxf.* Besilsleigh.
3. *Pang*. Bradfield, *Jenkinson*. Hermitage. Cold Ash. Bucklebury. Oare Common.
4. *Kennet*. Ufton, *Beeke*. Greenham Common. Inkpen Common. Aldermaston. Burghfield. Mortimer. Silchester. Snelsmore. Wickham Heath. Common on the heaths in this district.
5. *Loddon*. Sonning, *Rudge*, 1800. Windsor Park. Side of Virginia Water. Ascot Racecourse. Bracknell. Sandhurst College Grounds. Wellington College Grounds. Joudern's Ford. Ambarrow. Bearwood. Loddon Bridge. Cookham Dene. Stubbing's Heath. Pinkney's Heath. Crowthorn. East-hampstead. Frogmore. Bircher's Green. Common on the heaths in this district.

T. filiforme is recorded for all the bordering counties.

ANTHYLLIS, Linn. Gen. n. 773 (*Vulneraria*, Tourn. Inst. t. 211).

A. *Vulneraria*, Linn. Sp. Pl. 719 (1753). *Lady's Fingers*, *Kidney Vetch*. *Vulneraria rustica*, Gesner. *A. Leguminosa*, Ger. Em. 1240 (lettered 1204), Gerard, 1060.

Top. Bot. 106. Syme, E. B. iii. 19, t. 333. Baxt. t. 397. Nyman, 164. Fl. Oxf. 75.

Native. Pascual. Chalk downs, roadsides, in chalky districts, railway-banks, field-borders, gravel-pits, &c. Locally abundant, but confined to chalky or limestone soils, or to gravels which contain fragments of these formations. P. May–October.

First record. *Anthyllis*. Upon ye side of a hill halfe a mile beyond ye lower Hincsey hard by Mr. Tudball's house, *MS. in Lyte's Herball*, 1660. *Anthyllis vulneraria*, *Dr. Noehden* and *Mr. Bicheno* in *Mavor's Agr. Berks*, 1809.

1. *Isis*. Carswell, *Miss M. Niven*. Ashbury. Idstone. Cumnor.
2. *Ock*. White Horse Hill, *Trimen*, 1866. Hincsey, *MS. in Lyte*. Cumnor. Cherbury Camp. Frilford. Wantage. Didcot. Wittenham Clumps. Blewburton Hill. Uffington. Cholsey. Didcot. Lowbury Hill, &c. Plentiful on the cretaceous beds.
3. *Pang*. Streatley, *Pamplin*. Ilsley, *W. M. Rogers*. Pangbourn. Sulham. Tilehurst. Compton. Moulsoford. Basildon. Aldworth. Plentiful on the Chalk.
4. *Kennet*. Near Beedon and Ilsley, *W. M. Rogers*. Burghfield

Meadows, on gravel ballast, *Tufnail*. Shefford. Woolley Park. Gibbet Hill, 900 feet. Newbury. Englefield. Hungerford. Plentiful on the chalk.

5. Loddon. Frequent at Wargrave and Hurley, *Mr. Stanton*. Quarry Woods. Maidenhead. Bray Wick, in a gravel pit, abundant.

Almost wholly absent from the Bagshot beds.

On the Compton Downs and on the White Horse Hill the red-flowered variety occurs occasionally. It is not the extreme form, which perhaps alone should be called var. *COCCINEA*, Linn. Fl. Suec. ed. 2, 250 (1775).

The distribution of *Anthyllis* is very similar to that of *Clematis*, except that this is a plant of open sunny situations. It is a characteristic plant of calcareous soils.

Anthyllis occurs in all the bordering counties.

LOTUS, Linn. Gen. n. 803 (Tournefort, Inst. t. 227).

L. corniculatus, Linn. Sp. Pl. 775 (1753). *Bird's-foot Trefoil*.

Lotus corniculatus glabra minor, J. Bauhin, Hist. ii. 356, in Ray, Syn.

Top. Bot. 115. Syme, E. B. iii. 65, t. 368. Nyman, 183. Baxt. t. 249. Curt. Fl. Lond. ii. t. 56. Fl. Oxf. 82.

Native. Pascual. Pastures, roadsides, sunny banks, chalk downs, commons, &c. Very common and generally distributed, occurring in the turf of the public gardens in Reading. P. May–September. First record. Sonning, *Mr. S. Rudge*, Herb. Brit. Mus. 1800. *L. corniculatus*, *Mavor's Agr. Berks*, 1802.

Lotus corniculatus occurs under several modifications. The chief of these is a glabrous form, which is much the more common plant. In dry situations it becomes much stunted, and the flowers are often either tinged with crimson or almost wholly of a crimson colour (var. *rubriflorus*, Lamotte, Fl. du Plateau, 208), and the leaves are more coriaceous, but not quite as fleshy as in the var. *CRASSIFOLIUS*, Pers. Syn. ii. 354, a plant of maritime localities.

Var. *INCANUS*, S. F. Gray, Nat. Arr. ii. 607 (1821) = var. *villosus*, Seringe, and *L. corniculatus minor foliis subtus incanis*, Ray, Syn. 334 (1724), is a much scarcer form, which has been seen at Cothill, Didcot, Hinksey, Catmore, and Frilford.

Var. *CILIATUS*, Koch, Syn. Fl. Germ. 177 (1837), which is ciliated rather than pubescent, I have seen at Twyford, Moultsford, Boar's Hill, and in other localities.

A luxuriant plant, found occasionally in rich pastures, is *f. campestris*, Clavaud.

L. corniculatus occurs in all the bordering counties.

L. tenuis, Walds. et Kit. in Willd. Enum. Hort. Berol. ii. 797 (1809).

L. decumbens, Forster, Fl. Tonbridge, 86 (1816). Poiret, Enc. Supp. iii. 508.

Top. Bot. 115. Syme, E. B. iii. 67, t. 369. Nyman, 183. Fl. Oxf. 82. Native, but only colonist in most stations. Pascual. Roadsides, grassy places. Local and rather rare, preferring stiff clayey soil. P. June–August.

First record. *L. corniculatus*, var. *tenuis*. Heath near Crowthorn, Rev. C. W. Penny, in *Wellington College List*, 1870.

1. **Isis.** Buscot Park, *Bellamy*. Near Lechlade.
2. **Ook.** Canal side, near Abingdon, *Whitcell*, 1874.
3. **Pang.** Tilehurst, *Tufnail*.
4. **Kennet.** Near West Ilsley.
5. **Loddon.** Heath near Crowthorn. Wellington College Grounds, Starve All Farm, *Penny*.

I am inclined to think that, with the exception of the Lechlade station, the plant has been introduced with grass seeds in all the other localities.

L. tenuis is recorded for all the bordering counties.

[**L. angustissimus**, Linn. Sp. Pl. 774 (1753). Syme, E. B. iii. 68, t. 371, and

L. hispidus, Desf. Cat. Hort. Paris Tabl. 190 (1829). Syme, E. B. iii. 69, t. 372. Nyman, 183.

These are semi-maritime species which are recorded from Hampshire, but are not likely to occur in Berkshire as native plants.]

L. uliginosus, Schkuhr, Botanisch. Handbuch, ii. 412 (1796).

L. pilosus, Beeke, in the Bot. Guide, ii. 528 (1805). *L. major*, Smith, E. B. t. 2091, not of Scopoli. *L. corniculatus*, var. *villosus*, Sibth. Fl. Oxf. 231 (1794).

Top. Bot. 116. Syme, E. B. iii. 67, t. 370. Nyman, 182. Fl. Oxf. 81–2. Native. Uliginal. Marshes, brook-sides, wet meadows, bogs, and heaths. Widely distributed and locally common. P. June–September.

First record. Sonning, *Mr. S. Rudge*, in *Herb. Brit. Mus.* 1800. Given as *L. major*, but with no locality, in *Russell's Cat.* 1839.

1. **Isis.** Carswell, *Miss M. Niven*. Wytham. Buckland. Buscot. Tubney Wood. Appleton. Longworth.
2. **Ook.** Bagley, *Baxter*. Tubney, *Walker*. Frilford. Wootton. Boar's Hill. Cothill. Uffington. Challow. Marcham. Radley. Wittenham, &c.
3. **Pang.** Bradfield, *Jenkinson*. Near Beedon, *W. M. Rogers*. Pangbourn Marsh, luxuriant, *Tufnail*. Bucklebury. Cold Ash Common. Oare. Hermitage. Tilehurst.
4. **Kennet.** Inkpen. Burghfield. Aldermaston. Ufton. Sil-

chester. Mortimer. Hampstead Marshall. Pebble Hill. Crookham Heath. Beenham. Snelsmore. Woodhay. Shefford. Chilton Foliat. Theale. Thatcham, &c.

5. Loddon. Sonning, *Rudge*. Frequent about Wellington College, *Penny*. Frequent about Park Place, *Stanton*. Wargrave, *Melville*. Windsor, *Bolton King*. Winkfield. Hurst. Farley Hill. Jouldern's Ford. Finchampstead. Risely. Bagshot Heath. Early. Ambarrow. Long Moor. Barkham. Wokingham. Stubbing's Heath. Hurley. Bisham, &c.

Two forms of this plant are found, namely, a sub-glabrous and a hairy form; the latter is the more common. The former, which may be designated as var. *GLABER*, Brébisson, Flore de la Normandie, 87 (1869), *L. major*, var. *glabriusculus*, Bab. Man. Brit. Pl. ed. 2, 80, is a nearly glabrous plant, but with the leaflets ciliated on the margin. It has been noticed in all the districts, as at Wytham, Hinksey, Bradfield, Padworth, and Bracknell.

Between Bracknell and Wellington College some very dwarf specimens of *L. uliginosus* were found with the flower-heads densely covered with down, probably the result of some disease. Mr. Tufnail has noticed a similar form at Sonning, Early, and Mortimer.

L. uliginosus occurs in all the bordering counties.

ASTRAGALUS, Linn. Gen. n. 799 (Tournefort, Inst. t. 233).

A. danicus, Retz, Obs. Bot. fasc. iii. 41 (1783). *Purple Milk Vetch*.

A. hypoglottis, auct. var., not of Linn. Mantissa. *A. arenaria*, Huds. Fl. Angl., not of Linn.

Top. Bot. 117. Syme, E. B. iii. 74, t. 376. Nyman, 194. Baxt. t. 453. Fl. Oxf. 84.

Native. Pascual. Grassy places. Very local and rare. P. May-June. First recorded in this Flora.

4. **Kennet**. Near West Ilsley, Miss A. G. Humfrey.

I detected a tiny scrap of this plant adhering to a specimen of *Lathyrus pratensis*, which was gathered by Miss Humfrey between West Ilsley and Catmore Wood in 1894. I have not yet been able to discover the exact locality.

This plant formerly occurred in one locality in Oxfordshire, and is recorded for Wiltshire and East Gloucestershire.

A. glycyphyllos, Linn. Sp. Pl. 758 (1753). *Milk Vetch, Wild Liquorice*.

Hedysarum Glycyrrhizata, Gerard, 1056. *A. Glycyphyllos*, Index Kew.

Top. Bot. 116. Syme, E. B. iii. 75, t. 377. Nyman, 193. Fl. Oxf. 84. Native. Septal. Hedge-sides, calcareous fields, thickets on calcareous soil. Local. P. May-September.

First record. Sonning, Mr. S. Rudge, 1800, *Herb. Brit. Mus.* By the

roadside between Twyford and Reading, Mr. E. Forster, jun., in *Bot. Guide*, 1805.

1. **Isis.** Banks of fields in Wytham Wood, *Baxter*, in *Purt. Midl. Fl.* Pusey, *Boswell*. Cumnor Hill, *Whitwell*. Cumnor and Cumnor fields.
2. **Ock.** Between the two Hinkseys, *Baxter*, in *Walk. Fl.* On the hill between South Moreton Common and Cholsey, a rare plant, *Lousley*, in *Russell's Cat.* North Moreton, *Miss King*. Between Ferry Hinksey and Hen Wood, *Sister Jane Frances*. Tubney, *Walker*. Happy Valley and Foxcombe Hill, *Whitwell*. Between Radley and Kennington, on the border of Radley Wood.
3. **Pang.** Near Streatley. Sulham woods.
4. **Kennet.** Between Bagnor and Boxford, *Weaver*.
5. **Loddon.** Between Twyford and Reading, *Forster*, l.c. Near Twyford Turnpike, *Dr. Beke (Beeke)*, in *Lyson's Magna Britannica*, 1806. Sonning, *Rudge*. Near Hedsor, Berks, *Melville*. Wargrave.

A. glycyphyllos is found in all the bordering counties except mainland Hampshire.

****GLYCYRHIZA ECHINATA**, Linn. Sp. Pl. 741 (1753).

Alien. Casual. On rubbish heaps at Grandpont. A native of Eastern Europe, figured in Reichb. Ic. Fl. Germ. et Helv. xxii. t. 227.

ORNITHOPUS, Linn. Gen. 790 (*Ornithopodium*, Tournefort, Inst. t. 224).

O. perpusillus, Linn. Sp. Pl. 743 (1753). *Common Bird's-foot.*
Ornithopodium minus, Ger. Em. 1241.

Top. Bot. 118. Syme, E. B. iii. 77, t. 378. Nyman, 186. Baxt. t. 358. Fl. Oxf. 82.

Native. Ericetal. Heaths, sandy pastures, and roadsides. Locally common, but absent from a large area of clay and calcareous soils. It is fond of the driest and most sunny heaths. A. May-July.

First record. *O. perpusillus*, Dr. Noehden, *Mavor's Agr. Berks*, 1809.

2. **Ock.** On a common between Besilsleigh and Tubney in great abundance, 1839, *Baxt. Phaen. Bot.* Wootton Heath, *Boswell*. Tubney, *Walker*. Very common on Lid's Bank and Blewburton Hill. Blewbury, *Lousley*, in *Russell's Cat.* (I have not seen it in *Mr. Lousley's* localities.) Prickett's Heath. Frilford.
3. **Pang.** Streatley, *Pamplin*. In many dry meadows and pastures about Hampstead Norris, *Lousley*. [Probably both the foregoing are errors.] Bucklebury. Cold Ash Common. Oare Common.
4. **Kennet.** Greenham Common. Burghfield Heath. Padworth, in the greatest abundance. Mortimer. Ufton. Snelsmore. Curridge Common. Wickham Heath. Silchester. Common on the heaths in this district.

5. **Loddon.** About Bagshot, *Watson*. Brickfields everywhere. Wellington College, *Penny*. Park Place, *Stanton*. Hurst, *Melville*. Windsor Park near Virginia Water. Finchampstead. Risely. Bracknell. Ascot Racecourse. Sandhurst College Grounds. Jouldern's Ford. Farley Hill. Sunningdale. Twyford. Long Moor. Ambarrow. Bircher's Green. Sonning Cutting. Near Stubbing's Heath. Home Park, Windsor. Generally distributed on the heathy ground in this district.

A glabrous variety in which the whole plant, including the pod, is glabrous, is found in Normandy, but I have not seen it in Berks.

Ornithopus perpusillus is found in all the bordering counties.

HIPPOCREPIS, Linn. Gen. n. 791 (*Ferrum Equinum*, Tourn. Inst. t. 225).

H. comosa, Linn. Sp. Pl. 744 (1753). *Horse-shoe Vetch*.

Ferrum equinum comosum, Park. 1091.

Top. Bot. 119. Syme, E. B. iii. 79, t. 380. Nyman, 186. Baxt. t. 369. Fl. Oxf. 83.

Native. Pascual. Grassy chalk downs. Locally abundant. P. May-July. First record. *H. comosa*, Dr. Noehden, *Mavor's Agr. Berks*, 1809.

1. **Isis.** Near Idstone. Ashbury.
2. **Ock.** About Blewbury, but not very plentiful, *Lousley*, in *Russell's Cat.* 1839. White Horse Hill, *Trimen*, 1866. Blewburton Hill. Lowbury. Wantage.
3. **Pang.** Streatley, *Pamplin*. Unwell Wood, *Lawson*, in *Herb. Oxf.* Compton Downs. Very beautiful in Pangbourn Chalk Cutting. On Shooter's Hill. Basildon. Tilehurst. Moultsford. Lowbury. Abundant on the Chalk in this district.
4. **Kennet.** Lambourn Downs. Between Shefford and Letcombe Castle. Reading. West Ilsley Downs. White Horse Range. Walbury Camp.
5. **Loddon.** Near the Sham at Henley, 1831, *Baxt. Phaen. Bot.* Plentiful on the borders of wood near Hall Place. On chalky bank near the entrance to Park Place.

Ashmole has made a note in his copy of How's *Phyt. Brit.* that he and J. Watlington of Reading found it on Causham Hills neere Redding (in Oxfordshire about 1660).

Hippocrepis is one of the most characteristic plants of the Chalk formation, its bright orange-coloured flowers making a beautiful contrast with the Milkwort.

H. comosa is found in all the bordering counties.

ONOBRYCHIS, Adans. Fam. ii. 327 (1763) (Tourn. Inst. t. 221).

O. viciaefolia, Scop. Fl. Carn. ii. 76 (1772). *Sainfoin*, *Cock's Head*.

O. Onobrychis, Karst. Abb. Deutsch. Fl. n. 442. *O. sativa*, Lam. Fl.

Fr. ii. 652 (1778). *O. vulgaris*, Park. 1082. *Hedysarum Onobrychis*, var. *a*, Linn. Sp. Pl. 751 (1753).

Top. Bot. 119. Syme, E. B. iii. 81, t. 381. Nyman, 198. Baxt. t. 134. Fl. Oxf. 85.

Colonist or possibly native. Pascual. Dry pasture and cultivated ground. Common and possibly native on the Chalk. P. May-August.

First record. *Hedysarum onobrychis*, Dr. Noehden, *Mavor's Agr. Berks*, 1809.

1. **Isis.** Idstone. Ashbury.

2. **Ock.** Near Childswell Farm. Old stone pits S.E. of South Hinksey, *Baxt. Phaen. Bot.* (where it was still found in 1895). Letcombe Regis. Wantage, *Whitwell*. Tubney, *Walker*. Didecot. Radley. Blewburton. Uffington. Cothill. Steventon. Frilford. Shippon. Upton.

3. **Pang.** Streatley, *Pamplin*. Ilsley. Compton. Sulham. Basil-don. Tilehurst. Yattendon. Frilsham.

4. **Kennet.** Bagnor. Boxford, *Weaver*. Gibbet Hill. Newbury. Lambourn. Shefford. Hungerford. West Ilsley. Ashbury.

5. **Loddon.** Wargrave, *Britten*. Hurley. Aston. Bisham. Twyford. Maidenhead.

Onobrychis is found in all the bordering counties.

VICIA, Linn. Gen. n. 782 (Tournefort, Inst. t. 221).

V. hirsuta, S. F. Gray, Nat. Arr. ii. 614 (1821). *Common Tare, Hairy Tare*.

Ervum hirsutum, Linn. Sp. Pl. 738 (1753). *Cracca minor*, Riv. Tetr. Irr. Top. Bot. 123. Syme, E. B. iii. 84, t. 382. Nyman, 211. Fl. Oxf. 90. Native. Septal. Hedges, bushy ground, railway-banks, sandy fields, &c. Not uncommon and widely distributed. A. May-August.

First record. *Ervum hirsutum*. Wild Tare, Dr. Noehden, *Mavor's Agr. Berks*, 1809. Not very common about Oxford, *Baxt. Phaen. Bot.* n. 322, 1840.

1. **Isis.** Wytham. Besilsleigh. Appleton. Longworth. Faringdon. Stevenage. Idstone, &c.

2. **Ock.** Wootton Heath. Bagley, *Boswell*. Wittenham, *Miss B. Taylor*. Tubney, *Walker*. Hen Wood, *Sister Jane Frances*. Frilford. Cothill. Boar's Hill. Radley. Steventon. Marcham. Denchworth. Didecot. Challow.

3. **Pang.** Streatley, *Pamplin*. Compton. Bradfield. Tidmarsh. Yattendon. Bucklebury, &c.

4. **Kennet.** Newbury, *Russell's Cat.* Padworth. Mortimer. Inkpen. Kintbury. Hungerford. Lambourn. Theale. Reading. Burghfield. Silchester. Aldermaston, &c.

5. Loddon. Sonning. Bearwood. Aston. Maidenhead. Hurst. Twyford. Finchampstead. Binfield. Wargrave. Ruscombe. Blackwater. Sunningdale. Cookham. Barkham. Risely. Arborfield. Swallowfield. Early. Loddon Bridge, &c.

Vicia hirsuta is found in all the bordering counties.

- V. gemella**, Crantz, Stirp. Austr. v. 389 (1769). *Smooth Tare*.
V. tetrasperma, Moench, Meth. 148 (1794) (leges). *Ervum tetraspermum*, Linn. Sp. Pl. 738. *Cracca minor, siliquis gemellis*, Rivinus.
 Top. Bot. 123. Syme, E. B. iii. 85, t. 383. Nyman, 212. Fl. Oxf. 90.
 Native. Septal. Hedges, sandy cornfields, railway-banks, rough waste places, &c. Local. A. May-July.
 First record. *Ervum tetraspermum*. Smooth-podded tare, Dr. Noehden, *Mavor's Agr. Berks*, 1809.

1. Isis. Appleton.
2. Ock. Childswell Farm, *Baxter*. Copse near Jenny Bunting's Parlour, *Boswell*. Hen Wood, *Sister Jane Frances*. Marcham. Radley. Abingdon.
3. Pang. Streatley, *Pamplin*. Tidmarsh, *Tufnail*. Bradfield, *Jenkinson*. Oare Wood. Bucklebury.
4. Kennet. Riever Wood. Newbury. Mortimer. Burghfield. Padworth. Theale.
5. Loddon. Wellington College, *Penny*. Crazey Hill, *Stanton*. Wargrave, *Melwill*. Finchampstead. Windsor, *Bolton King*. Wokingham. Jouldern's Ford. Early. Bracknell. Loddon Bridge. Swinley. Sonning. Bagshot. Sunningdale. Long Moor. Barkham. Maidenhead.

Var. *TENUISSIMA*, mihi. Leaves narrow and acute. Hilum as in *V. gemella*. *V. gracilis*, auct. var., not of Lois. *E. tetraspermum*, L. var. *tenuifolium*, Fries, Fl. Suec. 23. *E. tenuissimum*, Pers. Syn. ii. 309.

2. Ock. By the railway near Radley.
 3. Pang. Near Frilsham.
 5. Loddon. Near Loddon Bridge.
- V. gemella* is found in all the bordering counties.

***V. gracilis**, Lois. Fl. Gall. 460 (1806).

Ervum gracile, DC., Cat. Hort. Monsp. 109.

- Top. Bot. 134. Syme, E. B. iii. 86, t. 384. Nyman, 212. Fl. Oxf. 90.
 Colonist. Grassy ground, waysides. Very rare. A. May-July.
 First record. Wytham, 1861, Mr. H. Boswell, in *Britt. Contr.* 1871.

1. Isis. Wytham, *Boswell*. Near third milestone on Eynsham Road, *Boswell* and *Thurland*. (Probably these refer to one locality. Not seen by me.)
3. Pang. Bradfield, *Jenkinson*. (Not seen by me.)
4. Kennet. Mortimer, in a field newly brought into cultivation.

Vicia gracilis is recorded for all the bordering counties except East Gloucestershire.

V. Cracca, Linn. Sp. Pl. 735 (1753). *Tufted Vetch*.

Cracca, Rivinus, Tetr. Irr. 49. *V. multiflora*, C. B. Pin. 345.

Top. Bot. 121. Syme, E. B. iii. 87, t. 385. Nyman, 206. Fl. Oxf. 88. Native. Septal, &c. Hedges, river-banks, meadows and pastures, railway-banks, &c. Generally distributed and locally abundant, but much less frequent on the heathy ground of the south and west of the county. P. May–September.

First record. *Vicia cracca*, Dr. Noehden, *Mavor's Agr. Berks*, 1809.

Our commonest species of Vetch, frequent by the Thames close to Oxford, Reading, Henley, near Windsor, by the Kennet at Hungerford and Newbury, &c., and by the Blackwater near Sandhurst. Especially abundant in grass fields near Steventon. By the Kennet at Midgham I found it with very pale blue, and also with very dark purple-coloured flowers.

In damp shady localities the leaves are naturally broader and we have the form *latifolia*. On dry ground the leaves are narrow and sometimes densely hairy as in var. *incana*, Thuill. Fl. Par. 367.

V. Cracca occurs in all the bordering counties, and is too ubiquitous a species to require special localities for Berkshire.

[**V. OROBUS**, DC., Fl. Fr. v. 577 (1815).

Orobis sylvaticus, Linn. Cent. Pl. i. 23. Top. Bot. 119. Syme, E. B. iii. 88, t. 386. Nyman, 207. Fl. Oxf. 87.

Orobis sylvaticus nostras. In the upper part of Merley Wood near Oxford. D. Sherard in Ray, *Syn.* ed. 2, 191, 1696.

On the faith of the above record, *Vicia Orobis* has been included by Withering and other botanists among the plants of Berkshire, but there is little doubt that Sherard mistook *V. sylvatica* for *V. Orobis*, which is found in the county.

V. Orobis occurs in S. Hampshire and E. Gloucestershire.]

V. sylvatica, Linn. Sp. Pl. 734 (1753). *Wood Vetch*.

V. sylvatica multiflora maxima, [How's] Phyt. Brit.

Top. Bot. 120. Syme, E. B. iii. 90, t. 387. Nyman, 206. Fl. Oxf. 87. Native. Sylvestral. Woods and thickets. Local and rare. P. June–August.

First record. *Vicia sylv. flore albo*, P. 1072, G. 1227, near Oxford, Mr. Bobart, jun. Merrett's Pinax, 124, 1666. See also Morison, *Hist. Ox.* 11, 61, 1680. A specimen of Bobart's is contained in Herb. Du Bois at Oxford, where there is also a specimen collected by Dillenius from Wytham about 1730.

1. Isis. About Oxford, Bobart. Upper part of Merley Wood, Sherard, '*Orobis sylvaticus*.' Merley Wood, Dillenius, 1730 (also seen there by Mr. Boswell in 1859, and by myself up to 1892, and

probably still existing). Tubney Wood. Appleton Common, *Miss Hoskins in Buxt. Phaen. Bot.* 173.

3. **Pang.** Ashridge Coppice, plentiful. In Rowcroft Wood, Yattendon, and in a few other places, *Lousley in Russell's Cat.* 1839. Given in Robertson's Env. of Reading of 1843 by Mr. Flower, but without locality.

4. **Kennet.** Welford Woods, *Miss Bowen.*

V. sylvatica is recorded for all the bordering counties except Surrey, but its record for North Hampshire appears to require corroboration, since it is not included in Townsend's *Flora* of that county, except for the Isle of Wight.

- V. sepium**, Linn. Sp. Pl. 737 (1753). *Bush Vetch.*

V. sepium perennis, J. Bauhin, Hist. ii. 313.

Top. Bot. 123. Syme, E. B. iii. 91, t. 388. Nyman, 208. Fl. Oxf. 88.

Native. Septal. Hedges, woods, and thickets, rather common and widely distributed, very abundant on the borders of woods on the chalk. P. April-September.

First record. *V. sepium*, *Mavor's Agr. Berks*, 1809.

Var. *ochroleuca*, Bast. Suppl. n. 8, has been seen near Ashampstead and Wytham.

A form with violet-coloured flowers was noticed by Bisham Wood.

V. sepium is found in all the bordering counties.

- **V. sativa**, Linn. Sp. Pl. 736 (1753). *Common Vetch.*

Top. Bot. 121. Syme, E. B. iii. 96, t. 392. Nyman, 210. Fl. Oxf. 89.

Casual. Cornfields, cultivated ground, waste places. It occurs as a relic of cultivation in all the districts, but it does not appear to establish itself.

A. May-August.

First record. *V. sativa*. Common Vetch. Much cultivated and found extremely profitable, particularly when taken as a meliorating crop, *Mavor's Agr. Berks*, 1809.

Included in list of Streatley plants recorded by Mr. W. Pamplin in *Phyt. v.* (1854) 154.

- V. angustifolia**, Linn. Amoen. Acad. iv. 105 (1759). Not of D. Clos. *Wild Vetch.*

V. Bobartii, Forst. E. B. Supp. t. 2708 (1831). Linn. Soc. Trans. (1830) 442.

Top. Bot. 121. Syme, E. B. iii. 97, t. 393 and 4. Nyman, 210. Fl. Oxf. 89. Comp. Cyb. Br. 499.

Native. Glareal. Dry banks, heathy ground, sandy roadsides, &c. Widely distributed and locally common. A. April-July.

First record. *Vicia repens flore rubro, siliquis longis, foliisque brevibus*. In a moor between Sunning and Maidenhead, *Merrett's Pinax*, 1666. A specimen of var. *Bobartii*, but labelled *V. lathyroides*, collected by Mr. S. Rudge near Sonning about 1800, is in the *Herb. Brit. Mus.*

1. **Isis.** Hills between Wytham and Ensham Bridge, *Baxter in Walk. Fl. Faringdon.* Buscot. Besilsleigh. Cumnor, &c.
2. **Ock.** Foxcombe, *Sister Jane Frances.* Denchworth, *Wait.* Frilford. Boar's Hill, *Fl. Oxf.* Tubney. Cothill. Bagley. Wantage. Wittenham. Dideot. Cholsey. Radley, &c.
3. **Pang.** Sulham, *Tufnail.* Upper Basildon. Cold Ash. Hermitage. Bucklebury. Fields above Unwell Wood. Tilehurst. Moulsoford, &c.
4. **Kenet.** Shinfield, *Tufnail.* Reading. Theale. Thatcham. Newbury. Hungerford. Snelsmore. Inkpen. Aldermaston. Burghfield. Mortimer. Shaw. Tilcombe Green, &c.
5. **Loddon.** Sonning, *Rudge.* In a moor between Sonning and Maidenhead, *Merrett.* Hurst, *Melville.* Abundant in railway cutting near Twyford. Sandhurst. Finchampstead. Long Moor. Farley Hill. Swallowfield. Early. Loddon Bridge. Bearwood. Wokingham. Ascot. Windsor Park. Stubbing's Heath. Bisham. Wargrave, &c.

V. angustifolia is a very variable plant and two extreme forms have been described as species, but the characters by which they were distinguished pass so insensibly into each other that the chain of intermediates appears to be unbroken. *V. BOBARTII*, so named after the Oxford Professor by Forster, is the typical *V. angustifolia* of Linnaeus, and is the plant which is usually found in drier soil, as on the barren heaths of Mortimer, Bracknell, &c. The var. *segetalis* of Koch, Syn. 197 (the *Vicia segetalis* of Thuillier, Fl. Par. 367), and of Syme, E. B. iii. t. 393, is the larger plant, with a longer and a stouter pod which splits the calyx; it is more frequently found in somewhat richer soil. Another form, the *V. uncinata*, Desv., with truncate, emarginate upper leaflets, should be looked for.

V. angustifolia is found in all the bordering counties.

V. lathyroides, Linn. Sp. Pl. 736 (1753). *Spring Vetch.*

Top. Bot. 122. Syme, E. B. iii. 98, t. 395. Nyman, 210. Fl. Oxf. 89. Native. Glareal. Dry sandy places, very local and rare, but possibly often overlooked. A. April-June.

First recorded by Mr. H. Boswell in *Phyt. n.s.* iv. 100, 1860.

2. **Ock.** Meadows under Bagley Wood near Bayworth, Sunningwell, *Boswell.* Tubney, *Walker.*

5. **Loddon.** Sonning Cutting, *Tufnail.* Dry heathy ground near Bracknell. Near Twyford.

V. lathyroides is recorded for all the bordering counties except Wilts and E. Gloucestershire.

In *Species Plantarum*, ed. 2, Linnaeus spelt the specific name with a capital letter, but he gave no citation to show that this was required.

****V. NARBONENSIS**, Linn. Sp. Pl. 737 (1753). Nyman, 209. *Italian Vetches.*

Alien. This plant comes up periodically in cultivated ground near Dorchester, and Mr. Bruce has seen it in a field at Burghfield.

[**V. HYBRIDA**, Linn. Sp. Pl. 737 (1753), not of Hudson. Syme, E. B. ii. 94, t. 391. Nyman, 209.

Casual. In a cultivated field near Chalfont, Bucks, *Rev. F. Woods*.]

[**V. LUTEA**, Linn. Sp. Pl. 736 (1753). Nyman, 209. Syme, E. B. iii. 92, t. 339. Has been found as a casual in Wiltshire.]

[**V. BITHYNICA**, Linn. Syst. ed. 10, 1166. Syme, E. B. iii. 99, t. 396. Is recorded for Gosport in Hampshire.]

LATHYRUS, Linn. Gen. n. 781 (Tournefort, Inst. t. 216).

L. Aphaca, Linn. Sp. Pl. 729 (1753). *Yellow Vetchling*.

Aphaca, Ger. Em. 1250.

Top. Bot. 124. Syme, E. B. iii. 101, t. 397. Nyman, 204. Fl. Oxf. 86.

Native. Septal. Hedge-banks. Very local and rare. A. June-July.

First recorded by the author in the *Rep. Bot. Rec. Club*, 1881.

3. Pang. On a hedge-bank near Moultsford.

4. Kennet. Newbury, by the railway, *Weaver*. Greenham, with other foreign species, *Jackson*. (Casual in both of these localities.) In a field at Burghfield, *Bruce*.

5. Loddon. Near Sonning, 1892, *Tufnail*.

Lathyrus Aphaca is recorded for all the counties bordering upon Berkshire.

L. Nissolia, Linn. Sp. Pl. 729 (1753). *Grass Vetch, Crimson Vetchling*.

Nissolia parva flore purpureo, Buxb. Cent. 3. 24. *N. uniflora*, Moench, Meth. 140.

Top. Bot. 124. Syme, E. B. iii. 102, t. 398. Nyman, 204. Fl. Oxf. 86.

Native. Pascual. Grassy quarries, banks, &c. Very local. A. May-July.

First recorded by Mr. Baxter in *Purton's Midland Flora*, 1821.

1. Isis. Between the old and the new road to Eynsham, about half a mile from the bridge, *Baxter*, l. c.

2. Ock. Near old stone pits about half a mile S.W. from S. Hinksey, *Baxter* in *Walk. Fl.* Tubney, *Walker*. Foxcombe, fields below the heath, *Sister Jane Frances*. Railway bank, Denchworth, *Wait*. Wootton brick-pits, *Fl. Oxf.* Road near the Abingdon Waterworks. Stone-pits west of Wootton.

4. Kennet. Railway-bank near the mouth of the Kennet, *Tufnail*. Clay Hill, N.E. side of Newbury, *Jackson*.

L. Nissolia is found in all the bordering counties. After the pods have discharged the seeds each half of the pod becomes twisted in a spiral manner.

L. pratensis, Linn. Sp. Pl. 733 (1753). *Meadow Vetchling*.

L. sylvestris flore luteo, Ger. Em. 1231.

Top. Bot. 125. Syme, E. B. iii. 104, t. 400. Nyman, 202. Fl. Oxf. 86. Native. Pratal. Meadows, pastures, hedges, and banks. Common and with a general distribution except on the dry upper chalk downs and the dry heaths of the south-west. P. June-Sept.

First record. *L. pratensis*. Tare everlasting, Dr. Noehden. Sometimes cultivated, but not found very productive or grateful to cattle, *Mavor's Agr. Berks*, 1809.

The plant varies from a nearly glabrous state to a very hairy form.

Var. *villosus*, Schleich. in Gaud. Fl. Helv. iv. 491, is the very hairy form which has been found by the side of the railway between Oxford and Kennington, &c.

Var. *grandistipulatus*, Koch in Reichb. Ic. Fl. Germ. et Helv. xxii. t. 2258, is a rare form in which the adult plant has stipules as large as the leaflets. In the young state of *L. pratensis* the stipules are so much developed as to somewhat resemble *L. Aphaca*.

L. pratensis is found in all the bordering counties.

****L. LATIFOLIUS**, Linn. Sp. Pl. 733 (1753).

Everlasting Pea.

Syme, E. B. iii. 107, t. 403. Baxt. t. 117. Fl. Oxf. 85. Nyman, 201. Alien.

1. *Isis*. In Tubney Wood, about six miles from Oxford, Miss Hoskins, in *Baxt. Phaen. Bot.* 117, 1834. (I think that this record must be an error, for I have never found anything in Tubney Wood but *L. sylvestris*. The flowers there are of a somewhat brighter hue than usual.)
3. *Pang*. Side of the railway near Pangbourn, *Holland*.
4. *Kennet*. About Southcote House, as a relic of the old garden.
5. *Loddon*. Quite naturalized and plentiful on the railway-banks between Maidenhead and Cookham.

L. sylvestris, Linn. Sp. Pl. 733 (1753), and of Dodoens. *Wild Everlasting Pea*.

Top. Bot. 125. Syme, E. B. iii. 106, t. 402. Baxt. t. 433. Nyman, 201. Fl. Oxf. 85.

Native. Sylvestral. Woods, thickets, and hedges. Local. P. June-September.

First record. Near Oxford, *Sir Joseph Banks*, *Herb. Brit. Mus.* 1770. Bagley Wood, Mr. Baxter in *Purt. Midl. Fl.* 1821.

1. *Isis*. Tubney, *Miss Hoskins*, under the name of *L. latifolius*. Wytham, *Boswell*. Tubney Wood, plentiful.
2. *Ook*. Near Oxford, *Banks*. Bagley Wood. Hedge near South Hinksey, *Baxter*, l.c. Tubney, *Walker*. Near the Fox public-house on Boar's Hill. In a Copse near the Brickyards on Boar's Hill.
3. *Pang*. Ashridge Wood, *Hewett's Hist.* Great Western West Junction and Roebuck Cutting, Reading, *Holland*.
4. *Kennet*. Newbury, 1866, *Mrs. Cecù's Herb.*
5. *Loddon*. Crazey Hill, *Stanton*.

In Wytham, Ashridge, and Tubney woods the plant is very

luxuriant, and the leaves are much broader than usual ; probably var. *intermedius*, Lamotte, Fl. du Plateau, 224. I have not seen a type specimen of *L. platyphyllus*, Retz, Prod. Fl. Scand. ed. 2, 170, the var. *latifolius*, Peterm. Fl. Lips. 545, which this broad-leaved plant may possibly prove to be. It is a variety, or as Nyman considers, a subspecies, of *L. sylvestris*, found in several continental localities, and is figured in Reichenb. Ic. Fl. Germ. xxii. t. 2263.

L. sylvestris is recorded for all the bordering counties.

[*L. PALUSTRIS*, Linn. Sp. Pl. 733 (1753). *Marsh Chickling Vetch*.

Top. Bot. 125. Syme, E. B. iii. 108, t. 404. Nyman, 202.

Error? *Lathyrus Viciaeformis*, seu *Vicia Lathyroides nostras*, Ray, Syn. 321.

In a wood near Abingdon, Berks, Mr. Hawkins, *Blackstone*, Spec. Bot. 44, 1746. This record is repeated under *L. palustris* in *Mavor's Agr. Rep. of Berks*, 1822.

In Thorn Croft and Horse Croft, Blewbury, and in many other moist meadows, *Lousley in Russell's Cat.* 1839. Woods in Berkshire, *Dickson's Hortus Siccus*.

The locality given by Blackstone is not an unlikely one, but no other botanist has been able to find the plant in Berkshire since. There may have been an error in the identification of the plant by Blackstone or its finder, or Abingdon, Berks, may have been confounded by Blackstone with Abington near Cambridge.

The localities given by Mr. Lousley are evidently erroneous; *L. pratensis* was probably intended. Mr. Dickson's specimens in the *Hortus Siccus* are not to be trusted. The specimens in the British Museum or the Linnean Herbaria do not look as if they were wild-grown plants.

L. palustris occurs in one locality in Hampshire. The statement in Top. Bot. 'Berks, Britten, v. sp.' is, I believe, a mistake.]

[*L. HUMILIS*, Linn. Sp. Pl. 732 (1753). Syme, E. B. iii. 103, t. 399. Nyman, 203. Is recorded for Surrey.]

[*L. MARITIMUS*, Bigelow, Fl. Boston, ed. 3, 286. Syme, E. B. iii. 109, t. 405. Nyman, 202.

Pisum maritimum, Linn. Sp. Pl. 727 (1753). Between Aldburgh and Oxford, Linnaeus in *Flora Lapponica*. This is a misprint for Orford in Suffolk, from which place there is a specimen in *Herb. Du Bois* at Oxford. It is a maritime species, formerly found in the Isle of Wight, but probably extinct.]

L. montanus, Bernh. Syst. Verz. Erf. 247 (1800) (not of Gren. and Godr.). *Wood Pea. Heath peaseling*, Mavor.

L. macrorrhizus, Wimm. Fl. Schles. 166 (1844). *Orobis tuberosus*, Linn. Sp. Pl. 728 (1753).

Top. Bot. 126. Syme, E. B. iii. 110, t. 406. Baxt. t. 433. Nyman, 205. Fl. Oxf. 87.

Native. Sylvestral. Open woods, coppices, bushy heaths, &c. Very rare in the north of the county, but locally common in the woods of the south. P. April-July.

First record. *Orobis tuberosus*, and a variety with linear leaves, which is found in Windsor Forest, but as far as I know, not mentioned

in any botanical work, Dr. Noehden in *Mavor's Agr. Berks*, 1809. (Probably this is *Lathyrus Viciaeformis*, Blackstone, Spec. Bot. 1746.)

2. **Ock.** Bagley Wood, *Scott in Walk. Fl.* Tubney, *Walker*.
3. **Pang.** Streatley, *Pamplin*. Sulham Wood, *Tufnail*. Bradfield, *Jenkinson*. East Ilsley, a very broad-leaved form, *Hewett*, 1839. Grimsbury Castle. Oare Wood. Cold Ash. Ashampstead. Hawkridge. Heath Wood near Bradfield. Mouldsford. Fence Wood.
4. **Kenet.** Inkpen. Wasing. Aldermaston. Wickham Heath. Tilcombe Green. Woodhay.
5. **Loddon.** Finchampstead Wood, *Penny*. Bulmarsh Park, *Tufnail*, where both forms occur. Billingbear Park, *Salmon*. Rather common about Park Place, *Stanton*. In Windsor Forest, *Dr. Noehden*. Woods near Marlow, *Mill*. Ascot. Swinley. Wokingham. Farley Hill. Risely. Bracknell. Quarry Wood. Bowsey Hill. Ashley Hill. Stubbing's Heath. Pinkney's Green. Bisham Wood. Warren Row.

Var. *LINFOLIUS*, *Asch. Fl. Brand.* 169 (1864), is the narrow-leaved form first mentioned by Dr. Noehden, sometimes found growing with the ordinary form. Dr. Noehden saw it near Windsor, Mr. Tufnail reports it from Bulmarsh, and I have seen it at Bradfield, Heath Wood, Bucklebury, at Ascot, at Wokingham, &c. Intermediate forms are found.

L. monianus is recorded for all the bordering counties.

[*L. TUBEROSUS*, *Linn. Sp. Pl.* 732 (1753). *Syme, E. B.* iii. 105, t. 401. *Nyman*, 201.

A few plants have been seen on St. Vincent's Rocks, at Clifton, W. Gloucestershire, by Miss Woods, where doubtless they are a recent introduction, for so conspicuous a plant would not have remained unnoticed in a spot so frequented by botanists.

It is found in no other bordering county.]

ROSACEAE, Juss. Hort. Trianon (1759).

PRUNUS, *Linn. Gen.* n. 546 (Tournefort, Inst. t. 398).

P. spinosa, *Linn. Sp. Pl.* 475 (1753). *Blackthorn*, *Sloe*.

Top. Bot. 126. *Syme, E. B.* iii. 114, t. 408. *Nyman*, 214. *Fl. Oxf.* 92. Native. Sylvestral. Woods, coppices, and hedges. Abundant through the less elevated portion of the county, and occurs in all the districts. It is less plentiful on the heath-lands of the south. Shrub. March-May.

First record. *P. spinosa*. Hedges. Common, *Mavor's Agr. Berks*, 1809. With *Polystigma rubrum*, *Pers. in Bagley Wood, Baxter, Stirp. Crypt. Ox.* 1825.

The Blackthorn varies very much in the size of the flowers, in the width of the petals, in the colour of the stamens, and in the shape and

size of the fruit. Several forms are beautifully figured in Jordan and Fourreau's *Icones ad Floram Europae*. Our Berkshire plants include the following.

Var. *DENSIFLORA* (Jord. and Fourr. *Icones*, t. 151, f. 220, as a species), the frequent plant with us, is one in which the flowers are small and thickly clustered together, and appear before the leaves.

Var. *RUSTICANA* (Jord. and Fourr. l.c., t. 152, f. 221, as a species), is a plant with slightly larger, less thickly clustered flowers, and with the fruit obtuse and depressed at the apex.

Var. *MACROCARPA*, Wallr. Sched. Pl. Crit. 217 (1822) = *P. fruticans*, Weihe, in *Flora*, ix. (1826) 748, in which the leaves and flowers are found at the same time, is not unfrequent, especially in the Isis and Ock districts.

Other varieties with large flowers and fruit connect *P. spinosa* with *P. insititia*.

P. insititia, Linn. *Amoen. Acad.* iv. 273 (1759). *Bullace*.

Top. Bot. 126. Syme, E. B. iii. 117, t. 409. Nyman, 214. *Fl. Oxf.* 92. Denizen or native. Septal. Hedges, rather common and widely distributed. Shrub. April-May.

First record. *P. insititia*, Mr. J. Lousley in *Russell's Cat.* 1839.

1. **Isis.** Wytham. Besilsleigh. Appleton. Longworth. Buckland. Faringdon. Buscot. Coleshill. Shrivenham. Ashbury, &c.
2. **Ock.** In Upton grounds, *Lousley*. Denchworth, *Wait*. Bagley Wood. S. Hinksey. Radley. Wallingford. Blewbury. Aston Tirrel. Lockinge. Wantage. Uffington. Garford. Pusey. Tubney. Boar's Hill, &c.
3. **Pang.** In Beech Wood and in some of the hedgerows about Hampstead Norris, *Lousley*. Pangbourn. Tidmarsh. Englefield. Bradfield. Ashampstead. Bucklebury. Hawkridge. Yattendon. Compton. Tilehurst.
4. **Kennet.** W. Woodhay, Inkpen, &c., *Reeks* in *Britt. Contr.* Mortimer. Burghfield. Hungerford. Kintbury. Lambourn. Fawley. Snelsmore. Theale, &c.
5. **Loddon.** Arborfield, *Tayler*. Stubbing's Heath. Cookham. Bisham. Wargrave. Hurst. Early. Swallowfield. Farley Hill. Finchampstead. Windsor, &c.

Several forms are beautifully figured as species in Jordan and Fourreau's *Icones*. Of these, which I should call varieties, I have noticed var. *SEPIVAGA*, var. *DUMETORUM*, and var. *AGRESTIS* in Berkshire; the first has large flowers, ovate leaves, and round fruit, the second has elliptic leaves and bright yellow anthers, the third has the flowers on longer peduncles, ovate sub-retuse petals, and orange anthers.

There are several other forms which connect *P. insititia* with *P. domestica*. The yellow-fruited form has been seen at Mortimer by Mr. Tufnail, and I have noticed it near Appleton.

P. insititia occurs in all the bordering counties.

****P. domestica***, Linn. Sp. Pl. 475 (1753). *Wild Plum*.

Comp. Cyb. Br. 500. Syme, E. B. iii. 118, t. 410. Nyman, 213. Fl. Oxf. 92. Denizen. Septal. Hedges. Not uncommon but probably in most, if not all, cases, the offspring of the garden plum or damson. Shrub or small tree. April-May.

First recorded by the author in the *Flora of Oxfordshire*, 1886.

1. **Isis.** Cumnor. Kingston Bagpuze, *Fl. Oxf.* Wytham. Buscot. Coleshill. Ashbury. Appleton.
2. **Ock.** Cumnor Hill, *Bolton King*. Bagley. Cothill. Hagborne. Blewbury. Marcham. Cholsey. Wantage. Cothill. Sunningwell. Challow. Charney Bassett. Boar's Hill. Lockinge.
3. **Pang.** HawkrIDGE. Cold Ash. Bradfield. Basildon, &c.
4. **Kennet.** Mortimer, *Tufnail*. Shefford. Hungerford. Greenham. Aldermaston. Theale, &c.
5. **Loddon.** Winkfield. Shottesbrooke. Ashley Hill. Long Moor. Windsor. Risely. Arborfield. Ruscombe. Cookham Dean, &c.

There is considerable variation in the plants placed under *P. domestica*; they may be descendants of cultivated races of the plum or fertile hybrids with the Bullace and Sloe. In fact, by rejecting intermediates we may have three fairly marked species, viz. *spinosa*, *insititia*, and *domestica*, as given in our lists, but in nature these species are connected by a very varying series of forms.

P. domestica occurs in all the bordering counties.

P. avium, Linn. Fl. Suec., ed. 2, 165 (1755). *Gean, Wild Cherry*.

Top. Bot. 128. Syme, E. B. iii. 119, t. 411. Nyman, 213. Fl. Oxf. 91. Native. Sylvestral. Coppices, woods, and hedges. Not uncommon, especially on the Chalk. Tree. April-May.

First recorded under the erroneous name of *P. Padus*, Bird's Cherry, in *Mavor's Agr. Berks*, 1809, and under the name of *P. Cerasus* by Mr. Baxter in *Phaen. Bot.* n. 100, 1834. Given by Mr. Pamplin as *P. avium* in *Phyt.* v. 154, 1854.

1. **Isis.** Wytham. Appleton. Cumnor. Pusey. Buscot. Near Coleshill.
2. **Ock.** Bagley, '*P. Cerasus*,' *Baxter*. Cholsey. Boar's Hill. Uffington. Wantage. Lockinge. Radley. Tubney. Marcham. Wittenham. Blewbury. Tubney, &c.
3. **Pang.** Streathley, *Pamplin*. Hermitage. Fence Wood, *W. M. Rogers*. Bradfield, *Jenkinson*. Englefield. Very large trees on

Ashampstead Common, where it is abundant. Frilsham. Basildon. Yattendon. Bucklebury. Tilehurst. Sulham. Oare. Standford. Dingley. Aldworth. Compton. Ashridge Wood. E. Ilsley. Moulsoford. Unwell Wood, &c.

4. Kennet. West Woodhay, *Reeks in Britt. Contr.* Wood near Snelsmore, *W. M. Rogers*. Woolley Park. Wickham Heath. Aldermaston. Silchester. Mortimer. Sandlesford. Ufton. Padworth. Wasing. Inkpen. Chilton Foliat. Lambourn. Woolhampton. Theale. Tilehurst. Brimpton. Kintbury. Riever Wood, &c.
5. Loddon. Shinfield, *Tufnail*. Well. Coll. List. A conspicuous object among the beeches near Park Place in the spring, *Stanton*. Ashley Hill. Bowsey Hill. Cookham. Quarry woods. Bisham. Swinley. Windsor Park.

P. avium occurs in all the bordering counties.

P. Cerasus, Linn. Sp. Pl. 474 p.p. (1753). *Wild Cherry*.

Top. Bot. 128. Syme, E. B. iii. 122, t. 412. Nyman, 213. Fl. Oxf. 91. Native. Septal. Hedges and woods. With a much less general area of distribution than the former species, it is locally common on the Chalk. Tree. April-May.

First recorded with certainty by Mr. H. Reeks in *Britt. Contr.* 1871.

2. Ock. Near Marcham, but in a form which is not quite typical, although much nearer to *P. Cerasus* than to *P. avium*. Wittenham Wood.
3. Pang. Westbrook Copse, *W. M. Rogers*. Sulham. Basildon. Bradfield. Hawkridge Wood. In woods near Cold Ash Common. Ashampstead. Hampstead Norris. Unwell Wood. Frilsham. Aldworth. Tilehurst.
4. Kennet. West Woodhay, *Reeks in Britt. Contr.* Mortimer, *Tufnail*.
5. Loddon. Beeches, Wellington College, *Penny*. Park Place, not unfrequent, *Stanton*. Banks of Loddon near Sandford Mill, *Melville*. Ashley Hill. Quarry Wood. Hurley. Near W. Ilsley. Bisham Wood, I believe some trees over forty feet high are of this species, but I have not seen them in flower. Bowsey Hill.

P. Cerasus occurs in Bucks, Wilts, Hants, Surrey, and Oxfordshire.

The odour of the flowers of *P. Cerasus* is more like that of the almond than that of *P. avium*, which is rather more suggestive of hawthorn. Syme, in *English Botany*, describes the flowers of *P. Cerasus* as rather larger and more open than those of *P. avium*, and of a firmer texture. Sir J. Hooker, in the *Student's Flora*, says the corolla is cup-shaped, while that of *P. avium* is open. Syme, I believe, is correct. The petals of *P. Cerasus* are more deeply notched than are those of *P. avium*. The leaves of *P. Cerasus* are much more irregularly crenate-serrate, and of a firmer texture and more glabrous than those of *P. avium*.

[**P. Padus**, Linn. Sp. Pl. 473 (1753). *Bird Cherry*.

Alien. The *P. Padus* of Mavor's *Agr. Berks* is *P. avium*. Occasionally seen

in plantations and shrubberies, but with no claims to be considered a native plant of this or either of the bordering counties, with the doubtful exception of E. Gloucestershire.]

SPIRAEA, Linn. Gen. n. 554 (Tournefort, Inst. t. 389).

S. Ulmaria, Linn. Sp. Pl. 490 (1753). *Meadow Sweet.*

Ulmaria, J. Bauhin, Hist. iii. 488. *Regina prati*, Ger. Em. 1043.

Top. Bot. 129. Syme, E. B. iii. 126, t. 415. Nyman, 215. Fl. Oxf. 93.

Native. Pratal. Moist meadows, sides of ditches, open moist places in woods. Very common in the low meadows by all our water-courses, but necessarily less frequent on the central Chalk plateau and on the dry heathy tracts of the south-west. P. May-Sept.

First record. Sonning, *Mr. S. Rudge in Herb. Brit. Mus.* 1800. *S. ulmaria*, *Mavor's Agr. Berks*, 1809.

Var. DISCOLOR, Koch, Syn. Fl. Germ. ed. 2, i. 231 (1843) (*S. glauca*, Schultz, Prod. Fl. Starg. Suppl. i. 26), the generally distributed form, in which the radical and stem leaves are white-tomentose on the under-surface.

Var. DENUDATA, Boenn. Prod. Fl. Monast. 146 (1824) (*S. denudata*, Presl, Fl. Čech. 101, 1819), with stem leaves green on the under-surface, is apparently of rare occurrence.

‘Through the Wytham flats,

Red loosestrife and blond meadow-sweet among,

We tracked the shy-Thames shore.’—*M. Arnold.*

S. Ulmaria is found commonly in all the bordering counties.

****S. CHAMAEDRYFOLIA**, Linn. Sp. Pl. 489 (1753). Bot. Register, t. 1222 (1829).

An alien collected by *Mr. Baxter* in a hedge at South Hinksey in 1830, where, if not planted, it must have been a garden escape.

S. Filipendula, Linn. Sp. Pl. 490 (1753). *Dropwort.*

Filipendula vulgaris, C. B. Pin. 163.

Top. Bot. 129. Syme, E. B. iii. 128, t. 416. Nyman, 215. Fl. Oxf. 93.

Native. Pascual. Dry pastures, chalk downs, &c. Widely distributed and locally abundant, especially on the grassy chalk downs; it is practically absent from the Oxford Clay, and is, of course, scarce where the soil is used for arable purposes, or of a clayey character. It prefers sunny situations. P. May-August.

First record. *S. filipendula*, Dr. Noehden in *Mavor's Agr. Berks*, 1809.

1. Isis. Idstone.

2. Ock. Common on Blewbury Downs, Lousley in *Russell's Cat.* Tubney, *Walker*. Radley Common, *Boswell*. Denchworth, *Wait*. Abundant in fields between Didcot and Stevenon. Cherbury Camp. Abundant on the northern escarpment of the Chalk from Lowbury by Wantage, Letcombe, White Horse Hill, &c. Frilford. Besilsleigh. Stevenon.

3. **Pang.** Streatley, *Pamplin*. Ilsley Downs, *Lousley*. Ilsley [*Hewett*], 1840, *Herb. Brit. Mus.* Abundant on Moulsoford, Streatley, and Compton Downs. Sulham. Tilehurst, &c.
 4. **Kennet.** Lambourn. Downs of West Ilsley and White Horse. Gibbet Hill. Farnborough.
 5. **Loddon.** Meadow by the river between Bisham Wood and Marlow, abundant, *Mill*. Park Place. Near Hurley. Quarry Wood.
- S. Filipendula* occurs in all the bordering counties.

RUBUS, Linn. Gen. n. 557 (Tournefort, Inst. t. 385).

R. idaeus, Linn. Sp. Pl. 492 (1753). *Raspberry*.

Top. Bot. 136. Syme, E. B. ii. 160, t. 442. Nyman, 215. Fl. Oxf. 93-4. Native. Ericetal. Heaths, coppices on a sandy and gravelly soil. Widely distributed, occurring in all the districts, and locally common. It ascends nearly to the top of Walbury Camp, and is found on the Letcombe Downs at nearly 800 feet, where the Chalk is covered with brick-earth, and in Wayland Smith's Copse. Shrub. June-July.

First record. *R. idaeus* in *Mavor's Agr. Berks*, 1809. Ilsley Downs, *Pinnock's History*, 1819.

Var. **ANOMALUS**, Arrhen. Rub. Suec. 14 (1839). Var. *obtusifolius* (Willd. Berl. Baumz. ed. 2, 409 (1811) as a species), Focke in Gard. Chron. xx. (1883) 150. *R. Leesii*, Bab. Man. Brit. Bot. ed. 5, 97 (1846). Syme, E. B. iii. 161, t. 443. Lees in Phyt. iv. (1853) 930.

2. **Ock.** Near to the top of Boar's Hill, *Dyer in Britt. Contr.* 1871, and in *Herb. Brit. Mus.* 1867.

This plant is of considerable taxonomic interest. The carpels remain open, so that the ovules are exposed and rarely ripen, but Dr. Focke has succeeded in raising a few seedlings, which have the characteristic foliage of the parent. . . . In the *Gardener's Chronicle*, xx. (1883) 150, 214, 276, and 342, an extraordinary origin was claimed for the var. *anomalus*, namely, that it was a hybrid of the Raspberry and the Strawberry. Mr. Culverwell says he raised this plant from seeds of the Raspberry which had been fertilized by pollen of the Strawberry, all proper precautions having been taken to prevent fertilization with Raspberry pollen. Dr. Focke does not, I believe, agree with this suggested origin of the plant.

Var. **ASPERRIMUS**, Lees, in Steele, Handb. Field Botany, 60 (1847). A form which comes under this variety occurs on Frilford Heath and near Hermitage, and another form approaching it occurs in Hen Wood.

Var. **INERMIS**, Pryor, Fl. Hertf. 128 (1887), is found on Greenham Common, Sandhurst, &c.

R. idaeus occurs in all the bordering counties, and the var. *anomalus* in Oxfordshire.

R. assus, Lindley, Syn. ed. 2, 92 (1835). Syme, E. B. 165. Rogers' Key, 2. Native. Ericetal. Heathy woods and open spaces in upland situations. Very local. Bush. July-September.

First found at Hen Wood by the author in 1884.

2. **Ock.** On the Boar's Hill Range as in Hen Wood, in the copse where *R. idaeus* var. *anomalous* occurs, and in the open ground near, where it is abundant and luxuriant, but with the shape of the leaf not quite typical. Also in the grounds of the Earl of Berkeley on the SW. side.

5. **Loddon.** In and about a copse near Blackwater Station, but on the Berkshire side of the river. The plant is not quite typical. The ripe fruit has a distinct raspberry flavour.

R. fissus is recorded for Hants and W. Gloucestershire.

R. nessensis, W. Hall in Trans. Roy. Soc. Edinburgh, iii. (1794) 21.

R. suberectus, Anders. in Linn. Soc. Trans. xi. (1815) 218.

Syme, E. B. iii. 164, t. 444. Rogers' Key, 2.

Native. Sylvestral. Heathy woods, bushy places in upland situations.

Local. Shrub. July–August.

First record. *R. suberectus*, Snelsmore Common, *Russell's Cat.* 1839. [In the *New Bot. Guide*, *R. suberectus* is stated to be recorded in Smith's *English Flora* by Mr. Bicheno from Newbury, but on p. 406 of that work there is no mention of Berkshire. '*R. nitidus*,' which is *R. plicatus*, W. & N., is given there, and may have been confused with it.]

2. **Ock.** Bagley Wood. Boar's Hill.

4. **Kennet.** Snelsmore Common, *Newbury Cat.* Newbury, *Brit. Herb. in Linn. Soc. and Bab. Brit. Rubi*, 53. Near Silchester.

5. **Loddon.** Ambarrow, very fine. Crowthorn. Long Moor. Finchampstead Leas. Wood near the Blackwater at Sandhurst. Wood near the Bog at Wellington College.

It is recorded for Surrey, Hants, Wilts, and W. Gloucestershire.

In opposition to the views of Dr. Focke and the Rev. W. M. Rogers, I have here used the name *R. nessensis*, Hall, which, in my opinion, has undoubted priority over the more generally-used name of *R. suberectus*. It must be remembered that Anderson changed the name, not because he thought that his plant differed from that named by Hall (on the contrary, he says it is 'the same, and so accurately described by him'), but because 'of the impropriety' of the name, which in his opinion was no longer applicable from the plant being found in other localities than the vicinity of Loch Ness, and this Anderson 'trusts will be a sufficient excuse for his changing it.' But Anderson transgressed the Laws of Nomenclature in acting as he did. Advocates for the use of the later name lay stress on the fact that we are not able to say with certainty what Hall's plant was, but Anderson accepted his description as accurate. In fact, Anderson had a perfect right to expound the characters of *R. nessensis*, but he had no right to change the name simply because it was inappropriate. If such a proceeding were allowed, old-established and perfectly valid (though inappropriate) names, such as *Gentiana germanica*, *Bromus madritensis*, and *Epilobium montanum*, might be altered.

R. sulcatus, Vest in Tratt. Rosac. Mon. iii. 42 (1823).

E. B. Suppl. ed. 3, 76. Rogers' Key, 2-3.

Native. Septal. Hedges and heaths on sandy soil. Very local and rare. Shrub. June–August.

First found in Berkshire by Dr. Focke and the author in 1894.

2. **Ock.** In a hedge bordering a copse near to the summit of Boar's Hill, where Dr. Focke pointed it out to me. The Rev. W. M. Rogers afterwards found it in another locality on the summit of the same hill, where it is more plentiful. The long cylindric berry, which is a distinguishing character, becomes quite black on ripening.

There are no records for the bordering counties.

R. plicatus, Weihe and Nees, Rubi Germ. 15, t. 1 (1822).

R. fruticosus, Linn. Sp. Pl. 493. See G. Beck, Fl. Nieder-Öster.
R. ericetorum, Bicheno in lit.

Syme, E. B. iii. 166, t. 445. Bab. Brit. Rubi, 67. Rogers' Key, 2.

Native. Ericetal. Heaths, and commons and heathy woods. Locally plentiful. Shrub. May–September.

First record. *R. nitidus* [not of Weihe and Nees], Mr. Bicheno in *Smith, Engl. Fl.* ii. 405, 1824.

2. **Ock.** On the Boar's Hill Range.
4. **Kennet.** *R. nitidus*. Snelsmore Common, *Bicheno, l.c.* Crookham and Greenham Commons, in full flower, May, 1893.
5. **Loddon.** Sandhurst, quite typical. Bear Wood. Bracknell. Long Moor. Risely. Finchampstead. Bagshot. Plentiful on the heaths in this neighbourhood.

R. plicatus occurs in Bucks, Surrey, Hants, and W. Gloucestershire.

R. nitidus, Weihe and Nees, Rubi Germ. 19, t. 4 (1822). Rogers' Key, 3. E. B. Suppl. ed. 3, 75.

Native. Ericetal. Heaths and commons. Locally plentiful. Shrub. July–September.

First found in Berkshire by the author in 1886; recorded by the Rev. W. M. Rogers in *Journ. Bot.* 156, 1887.

3. **Pang.** Bucklebury Common.
4. **Kennet.** Snelsmore Common, *W. M. Rogers*. (Prof. C. C. Babington remarks of the Snelsmore plant that he thinks it goes to *R. nitidus*, and is the plant which he named *rosulentus* for Briggs erroneously some years since, while in 1889 Dr. Focke thought it should be placed under *R. plicatus*.)
5. **Loddon.** Bearwood, the author in *Rep. of Bot. Exch. Club* (1892). Nearly typical, according to W. M. Rogers. Ambarrow. Sandhurst. (Dr. Focke thought a plant from Bearwood was near *rosulentus*.)

R. nitidus occurs in Surrey, Hants, and W. Gloucestershire.

R. holerythros, Focke.

R. nitidus, Genev., not of Weihe and Nees. Journ. Bot. 47 (1895).

Native. Ericetal. Open woods, heathy situations, local, but common where it occurs. Shrub. June–September.

First found in Berkshire by the author in 1891.

2. *Ock*. I pointed out this plant, which at first was thought to be a form of *R. rhombifolius*, as pink-flowered *nitidus*, to Dr. Focke, when he accompanied me to Boar's Hill in 1894. He took specimens with him, and he now names them as above. It is abundant on the heathy portion of the hill, and also occurs in Hen Wood, in the copse near the brickyards, and in the western part of Bagley Wood.

4. *Kennet*. Greenham Common.

5. *Loddon*. Near Sandhurst and Blackwater. Owl's Moor, frequent.

R. holerythros, so named on account of the wholly pink flowers, is a very beautiful bramble, as its pink blossoms, its very bright red fruit (ultimately glossy black), and the shining, rich dark-purple coloured stems, offer fine contrasts of colour and make it very conspicuous; it is recorded only for Surrey of the neighbouring counties.

R. affinis, Weihe and Nees, Rubi Germ. 18 (22), t. 3 (1822).

Rogers' Key, 4. Syme, E. B. iii. 167.

Native. Ericetal. Heathy ground in hilly situations on sandy soil. Very local. Shrub. July–September.

First found in Berkshire by the Rev. W. M. Rogers in 1895.

2. *Ock*. Pointed out to me by the Rev. W. M. Rogers in the grounds of the Earl of Berkeley on the western side of Boar's Hill, where it is rather plentiful and typical.

It is found in South Hants, Surrey, and W. Gloucestershire.

R. imbricatus, Hort, in Trans. Bot. Soc. Edinb. iv. (1853) 113.

Syme, E. B. iii. 170. Rogers' Key, 5. Bab. Man. Brit. Bot. ed. 5, 89.

Native. Septal. Open woods and hedges. Local. July–September.

First found in Berkshire by the author, 1892.

1. *Isis*. Besilsleigh (named for me by Dr. Focke).

2. *Ock*. Tubney Wood.

It is found in Hants, Surrey, and W. Gloucestershire.

R. carpinifolius, Weihe and Nees, Rubi Germ. t. 13 (1822), not of Lees.

Syme, E. B. iii. 175. Rogers' Key, 8. Nyman, 216. Fl. Oxf. 96.

Native. Sylvestral. Heathy places, hedges, and open woods. Local, but rather widely distributed. Shrub. July–August.

First found in Berkshire by the author in 1886.

2. *Ock*. On the SW. side of Boar's Hill in the grounds of the Earl of Berkeley. Bagley Wood, 1886; also as a shade-grown form.

and also in an untypical state; this third form, as the Rev. W. M. Rogers says, has a broader panicle and leaves thinner and narrower than the type. It is rather frequent in Kennington Lane.

3. Pang. Cold Ash Common, among furze, *W. M. Rogers*, Journ. Bot. (1888) 156. Mr. Rogers does not now vouch for this.
4. Kennet. Mortimer, one bush only seen in 1894, *W. M. Rogers*. Silchester, 1888 (Dr. Focke remarks that the plant I sent him is uncharacteristic). Aldermaston. Upton. Greenham.
5. Loddon. Maidenhead. Stubbing's Heath. Finchampstead. Risely. Bagshot. Wood near the Bog, Wellington College. Blackwater. Windsor. Bracknell (teste Dr. Focke).

R. carpinifolius occurs in Hants, Wilts, Surrey, and W. Gloucestershire.

R. incurvatus, Bab. in Trans. Bot. Soc. Edinb. iii. (1850) 54.

Syme, E. B. iii. 169. Bab. Man. Brit. Bot. ed. 5, 98. Rogers' Key, 7. Native. Septal. Hedges and heathy ground. Local. Shrub. July-Aug. First recorded by Rev. W. M. Rogers in *Journ. Bot.* 156, 1888.

2. Ock. Boar's Hill, *Rogers*, 1895.
3. Pang. Cold Ash Common, since confirmed by Prof. Babington, but the leaflets are rounder in outline and less inclined to be imbricate than in the type as seen by me in Wales, *W. M. Rogers*.
4. Kennet. Enborne Street. Near Inkpen.
5. Loddon. A plant which, according to Dr. Focke, best comes under this species occurs near Bearwood and Sandhurst.

The Rev. W. M. Rogers tells me he has seen no typical *incurvatus* in the county, though the Boar's Hill plant seems in some respects nearer the type than the Cold Ash Common one.

R. incurvatus is recorded only for Surrey of the bordering counties.

R. Lindleyanus, Lees, in Phyt. iii. (1848) 361.

Top. Bot. 138. Syme, E. B. iii. 168. Nyman, 216. Fl. Oxf. 94. Rogers' Key, 10.

Native. Ericetal, &c. Hedges and thickets, and less frequently in woods; not uncommon, in some places abundant, and widely distributed. Shrub. June-August.

First recorded by the author in the *Flora of Oxfordshire*, 1886.

1. Isis. Near Tubney.
2. Ock. Tubney Wood. Boar's Hill, also an untypical form. Hen Wood. Bagley Wood. Frilford. Wittenham.
3. Pang. Frequent, Langley. Hermitage. Fence Wood, *Rev. W. M. Rogers*. Ashampstead. Bradfield. Basildon. Tilehurst. Curridge. Oare. A glandular form or hybrid occurs between Tilehurst and Theale.

4. **Kennet.** Beedon Wood. Catmore. Peasmore Copse, *W. M. Rogers*. Mortimer, frequent. Ufton. Aldermaston. Silchester. Burghfield. Wickham. Greenham Common. Tilehurst. Enborne. Near Chieveley. Very abundant near Inkpen. A plant at Mortimer had a very glandular panicle rachis.
 5. **Loddon.** Bracknell. Stubbing's Heath. Bearwood. Windsor Park. Sandhurst. Broadmoor. Hurst. Blackwater. Early.
- A hybrid with *R. rusticanus* occurs at Tubney, and one with *R. leucostachys* at Tilehurst.

R. Lindleianus is found in all the bordering counties.

In Britten's *Contributions*, *R. Lindleianus* is given for Snelsmore Common, Berkshire, the authority cited being that of Walker's *Flora of Oxfordshire*, but that work contains no reference to *R. Lindleianus*. This may have arisen from Mr. Britten mistaking Mr. Bichenov's record of *R. nitidus*, cited in Walker's *Flora*, for *R. Lindleianus*. *R. nitidus* of Bell-Salter is *R. Lindleianus*, but *R. nitidus* of Mr. Bichenov appears to have been *R. plicatus*.

R. erythrinus, Genev. in Mém. Soc. Acad. Maine-et-Loire, xxiv. (1868) 196. Rogers' Key, 10. Suppl. E. B. ed. 3, 85 (1892).

Native. Bushy heaths, &c. Apparently local. Shrub. July-Sept. First found in Berkshire by the author in 1895.

3. **Pang.** Near Tilehurst. Respecting the specimen which was sent to the Rev. W. M. Rogers, he says: 'I see nothing to keep it from *R. erythrinus* except that the leaflets are more gradually acuminate than is usual for that species. For certainty younger specimens are desirable.'

It is recorded for the counties of Wilts, Hants, Surrey, and W. Gloucestershire.

R. rhamnifolius, Weihe & Nees, Rubi Germ. 22, t. 6 (1822).

Top. Bot. 139. Syme, E. B. iii. 168, t. 446. Rogers' Key, 6. Fl. Oxf. 94. Native. Septal. Hedges, borders of woods, and heathy ground, rather common and widely distributed. Occurring occasionally even on clayey soils. June-September.

First recorded in *Russell's Cat.* 1839, but without locality.

1. **Isis.** Pusey. Near Tubney, *Fl. Oxf.* 1886. Besilsleigh, a slender form. Appleton, with very large leaves. On a willow near Appleton.
2. **Ock.** Near Oxford, *Boswell in Britt. Contr.* 1871. Tubney. Boar's Hill. Marcham. Frilford. Bagley. Wittenham. Radley, &c.
3. **Pang.** Hampstead Norris. Cold Ash Common, unusually local, *W. M. Rogers*. Ashampstead. Tilehurst, 1891. Curridge. Oare. Hermitage, and a form.
4. **Kennet.** Peasmore Copse. Mortimer. Ufton, frequent, *W. M. Rogers*. Newbury. Inkpen. Chieveley. Near Theale. Wickham. Woodhay.

5. **Loddon.** Bearwood. Early. Wokingham. Shade-grown form at Sunningdale, 1891. Sandhurst. Windsor Forest. Cranbourn Park. High Standing Hill.

It is not unlikely that most of the foregoing records belong to var. *CARDIOPHYLLUS* (Lefev. & Muell. in Pollichia (1859), as a species).

R. rhamnifolius occurs in all the bordering counties.

- R. pulcherrimus**, Neuman in Cefversig. af Kongl. Vet. Akad. Foerh. (1883) n. 8, 65, not of Hooker.

R. polyanthemus, Lindeb. in Bot. Notiser. (1883) 105. *R. Maassii*, Focke in Bert. Fl. Braunschweig, 75 (1876). *R. Muenteri*, auct. Brit., not of Marsson. *R. carpinifolius*, Blox., not of Weihe & Nees (teste W. M. Rogers). Rogers' Key, 7. Suppl. Eng. Bot. ed. 3, 79.

Native. Septal. Hedges, thickets, woods, and heaths. Rather common and widely distributed. Shrub. July–September.

First found in Berkshire by the author in 1891.

2. **Ock.** In the hedges in Kennington Lane and in Bagley Wood (teste Dr. Focke). With very large leaves near Wittenham.

3. **Pang.** Basildon. Ashampstead. Tilehurst. Oare. Curridge. Hermitage.

4. **Kennet.** Hungerford, 1891. Newbury Wash. Hampstead Marshall. Mortimer. Ufton. Silchester. Greenham. Enborne Street.

5. **Loddon.** Windsor Forest. Bagshot. Bearwood, *the author in Rep. of Exch. Club*, 1892. Swinley. Ascot. Ambarrow. Sandhurst. Wellington College. Sunningdale. High Standing Hill.

Var. *serotus*, Rogers, Journ. Bot. (1895) 49.

3. **Pang.** Tilehurst.

4. **Kennet.** Mortimer, *W. M. Rogers*. Aldermaston. (Probably some of the foregoing localities belong to this variety.)

An eglandular form, referred to this species by Rev. W. M. Rogers, occurs at Sandhurst.

R. pulcherrimus is recorded for Wilts, Hants, Oxfordshire, and W. Gloucestershire, and I have seen it in Buckinghamshire.

[**R. LINDEBERGII**, P. J. Muell. in Pollichia (1859), 292, and

R. NEMORALIS, P. J. Muell. in Flora, xli. (1858) 139, not of Neuman, are recorded for W. Gloucestershire.]

- R. dumnoniensis**, Bab. in Journ. Bot. (1890) 338–9.

R. rotundatus, Focke, Journ. Bot. (1890) 129 (not of P. J. Mueller). Rogers' Key, 5. Suppl. E. B. ed. 3, 82 (1892).

Native. Septal. Wood-borders and hedges. Local. Shrub. July–Sept. First found by the author in Berkshire in 1891.

1. **Isis.** Near Besilsleigh.

2. **Ock.** Tubney Wood.4. **Kennet.** Near Hungerford.

The Rev. W. M. Rogers writes, respecting the Tubney plant, 'that he does not see how it can be kept apart, though he has never seen a specimen before with leaves so acuminate or stem so nearly glabrous.'

R. dummoniensis has been recorded for Hants, Oxfordshire (on Shot-over Hill), and W. Gloucestershire.

R. mercicus, Bagnall, in Journ. Bot. (1892) 372, var. **BRACTEATUS**, Bagnall, l.c. (1894) 187.

Native. Ericetal. Heathy ground and hedgerows. Very local, but frequent in the only known locality. Shrub. July–September.

First recorded by the Rev. W. M. Rogers in 1895, but found by the author in 1889.

2. **Ock.** A conspicuous plant on the Boar's Hill Range, and previously placed by me under aggregate *macrophyllus*. Rev. W. M. Rogers saw it in 1895, and at first was disposed to consider it as a form near to *R. pulcherrimus*; subsequently, after close examination and comparison of specimens, he refers it to the name given above; and Mr. Bagnall, who has seen a good series sent him by Mr. Rogers, agrees in the determination.

R. mercicus, var. *bracteatus*, has not been recorded for any bordering county.

R. villicaulis, Koehl, in Weihe & Nees, Rubi Germ. 43, t. 17 (1822–7).

Syme, E. B. iii. 176. Fl. Oxf. 96. Rogers' Key, 9. Nyman, 217.

Native. Ericetal. Heaths, open places in woods, hedges. Not uncommon, locally abundant, and widely distributed. Shrub. July–September.

First record. Wargrave, Mr. J. Cosmo Melville, in Brit. Contr. 1871.

1. **Isis.** Wytham. Besilsleigh.

2. **Ock.** Bagley Wood, where a very large form is also found. Boar's Hill (where I showed it to Dr. Focke, but it is in limited quantity there). Hen Wood. Frilford. Tubney. Besilsleigh.

3. **Pang.** In great quantities on Cold Ash Common, *W. M. Rogers*, Journ. Bot. 1887. Very plentiful on Tilehurst Common. Oare. Hermitage. Ashampstead. Fence Wood.

4. **Kennet.** Snelsmore Common, just the plant so frequent in SW. England, *W. M. Rogers*. Mortimer, *Tufnail*. Greenham. Burghfield. Silchester. Chieveley. Upton.

5. **Loddon.** Wargrave, *Melville*. Bearwood. Stubbing's Heath. Early.

Probably all the above localities belong to the var. *Selmeri* (Lindb.) (the *R. affinis*, auct. var. not of Weihe & Nees, and the *R. caltratus*,

Blox., not var. *calvatus*, Rogers, in Journ. Bot. (1894) 44). Var. *Selmeri* is the only form of *R. villicaulis* seen by the Rev. W. M. Rogers from Berkshire. It occurs in all the bordering counties.

Obs. The plant named var. *pampinosus*, Lees, by Prof. Babington from Beedon Wood, is, the Rev. W. M. Rogers tells me, only a form of *R. leucostachys*.

R. rhombifolius, Weihe, in Boenn. Prod. Fl. Monast. 151 (1824).

R. carpinifolius, E. B. Suppl. ed. 1, t. 2664, according to Babington. Rogers' Key, 8.

Native. Heathy places. Very local. Shrub. July–September.
First found in Berkshire by the author in 1890.

5. Loddon. Long Moor. Ambarrow (named by Dr. Focke). Sandhurst.

R. rhombifolius from Boar's Hill (so named for me) is almost certainly *R. holerythros*.

R. rhombifolius is recorded for Hampshire and Surrey.

[**R. GRATUS**, Focke, Syn. Rub. Germ. 213 (1877), is recorded for Surrey and W. Gloucestershire.]

[**R. LEUCANDRUS**, Focke, in Alpers, Verz. Gefaess. Lan. trostei Stade, 27 (1875), is recorded for Hants and W. Gloucestershire (? Oxon).]

R. argentatus, P. J. Muell. in Pollichia (1859), 93. Rogers' Key, 11.

Native. Septal. Hedges. Very local. Shrub. July–September.
First found in Berkshire by the author in 1892.

2. Ock. Near Tubney.

R. argentatus, which is apparently confined to the Coralline Oolite in Berkshire, occurs on Shotover Hill in Oxfordshire as the var. *robustus* (P. J. Muell. as a species). It is also recorded for Wilts, Hants, and W. Gloucestershire.

R. ulmifolius, Schott, in Oken, Isis (1818), v. 821. *Blackberry*.

R. rusticanus, Merc. in Reut. Cat. Pl. Genève, 279 (1832). *R. discolor*,

Bab. not of Weihe & Nees. *R. abruptus*, Lindl. Syn. 92 (1829).

Syme, E. B. iii. 171, t. 447. Rogers' Key, 13. Fl. Oxf. 95.

Native. Septal. Hedges, widely distributed, and very common on the Clays, less frequent on the sandy heaths of the south. Shrub. June–September.

First record. *Rubus scandens instar Viornae*. By Maidenhead, Merrett's *Pinx*, 106, 1666. See also Ray's *Syn. App.* ed. 3, 1724.

R. ULMIFOLIUS × **CAESIUS**, a hybrid, occurs near Bagley Wood along the Abingdon Road, and on the Eynsham Road. Various names had been suggested for the plant till, on the occasion of Dr. Focke's visit in 1894, he told me he considered it to be a hybrid of the two species (both of which occur there); the plant is very frequently barren or only a few drupes are found; the flowers are often tinted with pink.

R. ULMIFOLIUS × **LEUCOSTACHYS** is found at Tubney, Newbury, &c.

R. ULMIFOLIUS × **RHAMNIFOLIUS** occurs near Tubney.

R. ULMIFOLIUS × **SCHLECHTENDALII**, occurs near Bagley.

R. ULMIFOLIUS × **CORYLIFOLIUS** is found at Fyfield, Maidenhead, &c.

A double-flowered form is planted at Lockinge Park, where a somewhat striking form of *R. ulmifolius* also occurs.

R. ulmifolius is found in all the bordering counties.

R. pubescens, Weihe, in Boenn. Prod. Fl. Monast. 152 (1824), not of Vest.

R. thyrsoides, of many British authors, not of Wimmer.

E. B. Suppl. ed. 3, 86 (1892). Rogers' Key, 13. Weihe & Nees, Rubi Germ. t. 16.

Native. Septal. Hedges. Not uncommon, especially on rather stiff soil. Shrub. July–September.

First record. *R. thyrsoides*, at Wootton, the author in *Flora of Oxf.* 1886.

1. Isis. Cumnor. Besilsleigh. Appleton. Wytham.

2. Ock. Wootton, *Fl. Oxf.* Hen Wood. Boar's Hill. Frilford. Tubney. Bagley. Radley.

5. Loddon. Bearwood. Stubbing's Heath. Blackwater.

The above records are for the aggregate species *R. pubescens*.

Var. **SUBINERMIS**, Rogers, in Journ. Bot. (1894) 45.

2. Ock. Boar's Hill, *Dr. Focke*.

Aggregate *R. pubescens* is recorded for Oxfordshire, Surrey, Hants, and Wilts.

R. thyrsoides, Wimmer, Fl. Schles. 204 (1832). Rogers' Key, 14.

Native. Septal. Hedges, thickets, and bushy heaths. Very local. Shrub. June–September.

First found in Berkshire by the author in 1887.

2. Ock. Near Frilford, in hedges and in heathy ground. In a hedge at Fyfield near the Tubney or Fyfield Elm.

R. thyrsoides is found in Oxfordshire and Hampshire.

R. silvaticus, Weihe & Nees, Rubi Germ. 41, t. 15 (1826).

E. B. Suppl. ed. 3, 92. Rogers' Key, 14.

Native. Sylvestral. Woods in heathy districts. Local. Shrub. July–September.

First found by the author in 1886 near Silchester.

4. Kennet. Ufton Wood, small but abundant, and to the north of Mortimer Common, *W. M. Rogers*, 1894. Silchester, 1886 (passed as correct by Dr. Focke).

5. Loddon. Sandhurst. Blackwater.

R. silvaticus is recorded for Wiltshire and Surrey.

R. macrophyllus, Weihe & Nees, Rubi Germ. 36, t. 12 (1826).

Rogers' Key, 15. Syme, E. B. iii. 177, t. 450. Nyman, 217. *Fl. Oxf.* 96.

Native. Sylvestral, septal. The aggregate species is widely distributed in the county, and is locally common in hedges, woods, &c. Shrub. June-September.

First recorded by the author in *Rep. of Bot. Record Club*, 1880.

The restricted *R. macrophyllus* has been found in the following localities.

2. Ock. Boar's Hill, *Rep. of Bot. Rec. Club*, 1880. Hen Wood (as a weak form according to Rev. W. M. Rogers). Near Bagley Wood.
3. Pang. Hampstead Norris Wood, Langley Wood, *W. M. Rogers*, 1887.
4. Kennet. Aldermaston (passed by Dr. Focke). Ufton Wood. Silchester.
5. Loddon. Silchester (a more glandular form). Park Place. Old Windsor. Bearwood. Bulmarsh. Hurst. Sandhurst. Blackwater. Ambarrow.

. Var. *SCHLECHTENDALII* (Weihe, in Link, Enum. Hort. Berol. ii. 62, as a species).

This is the most common of the macrophyllous varieties, being found in all the districts.

1. Isis. Wytham. Cumnor.
2. Ock. Boar's Hill, the author in *Rep. of Bot. Exch. Club*, 1892. Bagley Wood, on the west side of the Abingdon Road, and on the south side of the road going to the Fox Inn. Tubney.
3. Pang. Ashampstead. Bucklebury.
4. Kennet. Brewery Common, Mortimer, *W. M. Rogers*. Aldermaston (teste Dr. Focke). Greenham. Mortimer. Sandleford.
5. Loddon. Binfield, *F. A. Rogers*. Park Place. Old Windsor. Ambarrow. Sandhurst. Blackwater. Windsor Forest. Hurst.

At Sandhurst a plant occurs which the Rev. W. M. Rogers says may perhaps be the var. *AMPLIFICATUS* (Lees, in Steele's Handb. 58, as a species), but he cannot say with certainty; the plants were gathered very late in the season.

The aggregate species is found in all the bordering counties.

R. Questierii, Lefèvre and P. J. Muell. in Pollichia (1859), 120. Rogers' Key, 18.

Native. Ericetal. Heathy places. Very local. Shrub. July-Sept. First found in Berkshire by the author in 1895.

5. Loddon. Near Sandhurst.

R. Questierii does not appear to be recorded for any of the bordering counties.

R. lentiginosus, Lees, in Steele's Handb. Field Bot. 60 (1847).

R. cambricus, Focke, in Griffith's Fl. of Anglesey and Carnarvon, 46 (1895).

Native. Ericetal. Heathy places. Very local. Shrub. June-August. First found in Berkshire by the author in 1895.

5. **Loddon.** In some plenty on heathy ground on Owl's Moor or Wild Moor Bottom between Sandhurst and Wellington College. (Rev. W. M. Rogers reports on the plant: 'I think *R. lentiginosus* but a very weak form, with leaflets longer pointed and hairier than in any of my Welsh specimens.')
R. lentiginosus is not recorded for any bordering county.
- R. Colemanni**, Blox. in Kirby, Fl. Leicester, 38 (1850).
 Syme, E. B. iii. 174. Rogers' Key, 17.
 Native. Ericetal. Heathy ground. Very local. Shrub. June-Aug. First found in Berkshire by the Rev. W. M. Rogers in 1895.
2. **Ock.** On the west side of Boar's Hill in the grounds of the Earl of Berkeley, where Mr. Rogers discovered it.
R. Colemanni is recorded for Surrey and Hampshire.
- R. Sprengelii**, Weihe, in Flora, ii. (1819) 17.
 Syme, E. B. iii. 179. Rogers' Key, 18. Weihe & Nees, Rubi Germ. t. 10.
 Native. Sylvestral, &c. Open woods and heathy places, usually on sandy or peaty soil. Rather local. Shrub. July-September. First found in Berkshire by the author in 1884.
2. **Ock.** Hen Wood. Boar's Hill, both on the top of the hill and on the SW. side. Bagley Wood on the west side, and abundant in Kennington Lane.
3. **Pang.** At junction of Fence Wood with Cold Ash Common as *R. Borreri*, W. M. Rogers, in Journ. Bot. (1887). Near Tilehurst.
4. **Kenet.** Near Silchester (of this plant Dr. Focke remarks 'good *Sprengelii*'). Greenham Common.
5. **Loddon.** Sandhurst. Owl's Moor.
R. SPRENGELII × *PYRAMIDALIS* occurs in Kennington Lane.
R. Sprengelii is recorded for all the bordering counties.
- R. micans**, Gren. et Godr. Fl. Fr. i. 546 (1848).
R. adscitus, Genev. 1860. *R. villicaulis*, var. *adscitus*, Bab. in Journ. Bot. (1878) 115. Rogers' Key, 17.
 Native. Septal. Hedges. Very local. Shrub. July-September. First found in Berkshire by the author in 1884.
5. **Loddon.** Between Maidenhead and Twyford.
R. micans has been found in Surrey, Hampshire, and Wiltshire.
- [**R. hirtifolius**, Muell. & Wirtgen ex Focke, Syn. Rub. Germ. 290, not of Bab., is recorded for W. Gloucestershire, and **R. mollissimus**, Rogers, Journ. Bot. (1894) 45, for Surrey.]
- R. pyramidalis**, Kalt. Fl. des Aachen. Beck. 275 (1845), not of Bab. Rogers' Key, 18-19. *R. hirtifolius*, Bab. Man. Brit. Bot. ed. 8, 111 (1881), not of Muell. & Wirtg.

Native. Heathy places, open woods, occasionally on sandy soil. Locally common and with a wide range. Shrub. July-September.

First found in Berkshire by the author in 1882. See *Report of Bot. Exch. Club*, 1892.

1. *Isis*. Tubney Wood.
2. *Ock*. Hen Wood. The typical plant as growing in open sunny spots. Boar's Hill. Also as a shade grown plant, and as the type, and also as a robust form in Bagley Wood. Tubney Wood. Frilford. Lockinge Park. Wittenham.
3. *Pang*. Ashampstead. Oare. Curridge. Hermitage. Cold Ash Common.
4. *Kennet*. Ufton Wood, *W. M. Rogers*. Aldermaston, 1886. Greenham Common. Crookham Heath. Chieveley. Enborne Street. Newbury Wash. Typical.
5. *Loddon*. Park Place.

R. PYRAMIDALIS \times *RHAMNIFOLIUS* occurs at Tubney and at Bagley.

R. pyramidalis, which in Berkshire varies considerably, is found in Hants, Surrey, Bucks, Oxfordshire, and W. Gloucestershire.

R. leucostachys, Schleicher, in *Sm. Engl. Fl.* ii. 403 (1824).

Top. Bot. 131. Syme, *E. B.* iii. 172, t. 448. Nyman, 218. *Fl. Oxf.* 95.

Native. Sylvestral. Woods, hedges, and heathy places, not only on sand, but also on limestone and clay soils. Common and widely distributed; occurring in all the districts. July-September.

First record. About Newbury, Mr. Bicheno, in *Sm. Engl. Fl.* 403, 1824, and first as a British plant. See also the author in *Report of Bot. Rec. Club*, 1880.

Var. *ANGUSTIFOLIUS*, Rogers, in *Journ. Bot.* (1892) 234.

This very distinct variety, or perhaps species, has been seen on Boar's Hill, the author in *Rep. of Bot. Exch. Club*, 1892, in Bagley Wood. Hen Wood, near Newbury Wash. (Mortimer, *W. M. Rogers*.) Bearwood, 1891 (narrow-leaved *leucostachys*, teste Dr. Focke). Near Wellington College.

The Beedon plant, named by Prof. Babington *R. villicaulis*, var. *pampinosus*, Lees, see *Journ. Bot.* (1888) 156, belongs to this species.

R. LEUCOSTACHYS \times *RHAMNIFOLIUS* occurs on Boar's Hill and on Knowl Hill.

R. leucostachys occurs in all the bordering counties.

[***R. LASIOCLADUS***, Focke. See *Syn. Rub. Germ.* 198.

A bramble strongly recalling this species was found near Tilehurst in 1895, but it will be necessary to collect specimens earlier in the season before we can admit it to our list. It occurs in Surrey.]

R. mucronatus, Blox. in Kirby's Fl. of Leicester, 43 (1850), not of Seringe in DC., Prod. ii. 565.

R. mucronulatus, Syme, not of Boreau, Fl. du Centre Fr. ed. 3, ii. 196.

Rogers' Key, 22. Syme, E. B. iii. 178, t. 451. Fl. Oxf. 97.

Native. Ericetal. Heathy ground. Rare. Shrub. July-August.

First found by the author, 1890.

2. Ock. Boar's Hill (teste Dr. Focke).

5. Loddon. Early Heath. Near Sandhurst.

R. mucronatus is recorded for all the bordering counties except Bucks. If *R. mucronatus*, Seringe, in DC. Prod. ii. 565, be retained, this species will require a new name. *R. Symei* might be chosen.

R. Gelertii, Frider. in Bot. Tidsskrift, xvi. (1886) 237, var. **CRINIGER**, Linton. Rogers' Key, 23. Journ. Bot. (1895) 81.

Native. Ericetal. Heathy ground. Very local. Shrub. July-August. First found in Berkshire by the author in 1892.

5. Loddon. Ambarrow, 1892. (In the typical plant the sepals are more reflexed, teste Dr. Focke.) Near Maidenhead.

This variety of *R. Gelertii* does not appear to have been found in the bordering counties.

R. anglosaxonicus, Gelert. in Bot. Tidsskrift, xvi. (1888) 81.

Rogers' Key, 24. E. B. Suppl. ed. 3, 95 (1892).

Native. Heaths, hedges, and commons. Local. Shrub. July-Sept. First found by the author in 1895.

3. Pang. Near Tilehurst.

The Rev. W. M. Rogers reports it from Hants and Wilts.

R. infestus, Weihe, in Boenn. Prod. Fl. Monast. 153, and in Weihe & Nees, Rubi Germ. t. 30 (1826), not of Bab. Rogers' Key, 24.

Native. Heaths and dry woods, hedges. Local. Shrub. July-Sept. First found in Berkshire by the author in 1891.

2. Ock. Border of Radley Wood.

3. Pang. Tilehurst.

4. Kennet. Greenham Common.

5. Loddon. Finchampstead in 1891 (but with the terminal leaf not so broad as usual). Risely, 1891. Blackwater. Bearwood.

R. infestus is reported from Surrey.

[**R. UNCINATUS**, P. J. Muell. in Flora, xli. (1858) 154, is recorded for W. Gloucestershire, and **R. LEYANUS**, Rogers, in Journ. Bot. (1895) 81 = *R. Drejeri*, Rogers, not of Jensen, for Bucks and Wilts.]

R. Borreri, Bell-Salter, in Annals & Mag. Nat. Hist. xv. (1845) 306. Rogers' Key, 25.

Native. Ericetal. Heathy woods, hedges, and commons. Local. Shrub. July-September.

First found by the author, 1894.

3. Pang. A form near *Borreri* occurs at Tilehurst.

4. **Kennet.** A form with more hairy leaves, and also at Greenham Common, with a rather abnormal panicle. Ufton. Near Silchester.

R. Borreri is recorded for the counties of Wilts, West Gloucester, and the Isle of Wight.

R. radula, Weihe in Boenn. Prod. Fl. Monast. 152, and Rubi Germ. t. 39 (1826).

Top. Bot. 194. Syme, E. B. iii. 184, t. 452. Rogers' Key, 27. Fl. Oxf. 97. Native. Septal. Hedges, on dry sandy soil, woods, and heaths, not uncommon and widely distributed, occurring occasionally on clay and limestone soils. Shrub. July-September.

First record. Frilford, the author, *Fl. of Oxfordshire*, 98, 1886.

1. **Isis.** Tubney. Wytham. Appleton.

2. **Ock.** Frilford, *Fl. Oxf.* Boar's Hill. Bagley (also a small-flowered form). Wittenham. Radley (typical and fine specimens).

3. **Pang.** Langley. Hermitage, *W. M. Rogers*. Tilehurst (type). Oare. Yattendon. Hermitage.

4. **Kennet.** Peasmore, &c. Mortimer, sparingly, *W. M. Rogers*. Hungerford. Catmore. Newbury Wash.

5. **Loddon.** Chieveley. Binfield, *F. A. Rogers*. Sandhurst, &c.

The Rev. W. M. Rogers remarks that the Mid-Berks plant is as a rule stouter and more prickly than in SW. England.

Var. *ANGLICANUS*, *Rogers*.

3. **Pang.** Hermitage.

4. **Kennet.** Mortimer, *F. Tufnail*.

A form from the neighbourhood of Hungerford, gathered by me in 1891, is considered by the Rev. W. M. Rogers to be between *R. radula* and *R. fuscus*, and therefore near to var. *sertiflorus* (P. J. Muell. as a species). A plant from Boar's Hill, &c., is considered by the Rev. W. M. Rogers not quite to agree with typical *radula*, nor can it be placed under *echinoides*.

Aggregate *R. radula* occurs in all the bordering counties.

[**R. PODOPHYLLOS**, P. J. Muell. in *Bonplandia* (1861), 281. Rogers' Key, 19.

A bramble recalling this species was gathered between Enborne and Newbury in 1894, but I have not been able to find it again.]

R. echinatus, Lindl. Syn. 94 (1829), not of P. J. Mueller.

R. rudis, Syme, not of Weihe & Nees. Syme, E. B. iii. 183. Fl. Oxf. 97. Rogers' Key, 29.

Native. Ericetal. Hedges, heaths and commons, and open woods, generally distributed except on the Clay and Chalk (where it is rare). Shrub. July-September.

First recorded under the name of *R. rudis* by Mr. J. Cosmo Melvill in *Britt. Contr.* 1871. See also the author in *Rep. of Bot. Rec. Club*, 1880.

1. **Isis.** Tubney. Appleton. Pusey.

2. Ock. Boar's Hill. Bagley. Hen Wood. Wootton. Frilford. Tubney, a luxuriant form also occurs. Radley.
3. Pang. Hampstead Norris. Sandy Lane, well marked and frequent, *W. M. Rogers*. Ashampstead. Basildon. Ashridge. E. Ilsley. Tilehurst. Oare. Hermitage. Yattendon. Frilsham.
4. Kennet. Beedon. Catmore. Mortimer, *W. M. Rogers*. Hodcott. Burghfield. Hungerford. Newbury. Between Chilton Foliat and Lambourn. Wickham. Kintbury.
5. Loddon. Wargrave, *Melville*. Maidenhead. Finchampstead. Ambarrow. Bracknell. Wokingham. Bearwood. Stubbing's Heath. Sandhurst. Hurst. High Standing Hill. Windsor Park, &c.

Var. *MICROPHYLLUS*. *R. rudis*, var. *microphylla*, Bloxam, in Kirby Fl. Leicester, 41 (1850). Occurs also at Tubney and elsewhere.

R. echinatus is found in all the bordering counties.

R. oigocladius, Muell. & Lefèvre in Pollichia (1859) 134. *R. fusco-ater*, auct. var.

Native. Ericetal. Heathy places, hedges, &c. Very local. Shrub. July–September.

First found in Berkshire by Dr. Focke and the author in 1894.

2. Ock. Rev. W. M. Rogers considers that the plant occurring on Boar's Hill, which Dr. Focke, when he first saw it growing, thought might be *R. Leyi*, comes best under this name.

Var. *NEWBOULDII*, *Rogers*, Lond. Cat. ed. 9, 1895. *R. Newbouldii*, Bab. Journ. Bot. (1886) 230. *R. radula*, var. *denticulatus*, Bab. Man. Brit. Bot. ed. 5, 105 (1862). *R. oigocladius*, var. *denticulatus*.

2. Ock. Bagley Wood (pointed out to me by Rev. W. M. Rogers).
4. Kennet. Greenham.
5. Loddon. 'Near *Newbouldii*, but I can say nothing certain,' is the Rev. W. M. Rogers' report on specimens gathered late in the season near Sandhurst.

R. oigocladius is only recorded for Oxford of the bordering counties.

R. rudis, Weihe & Nees in Bluff & Fingerh. Comp. Fl. Germ. i. 687 (1825). Rubi Germ. t. 40. E. B. Suppl. 103. Rogers' Key, 29. Nyman, 219.

Native. Sylvestral. Open woods. Very local. Shrub. July–August. First record. Hen Wood, the author in *Rep. of Bot. Exch. Club*, 367, 1892.

2. Ock. Hen Wood. Rather less glandular than usual, according to the Rev. W. M. Rogers.

5. Loddon. Bearwood, but the armature very different.

It is found in Oxfordshire, Bucks, Surrey, and W. Gloucestershire.

[**R. FRÆUPTORUM**, 'Boulay' Bab. in Journ. Bot. (1878) 143. *R. pygmaeus*, Bab. Man. Brit. Bot. ed. 5, 104 (1862), not of Weihe, was found by me on Shot-over Hill in Oxfordshire, and was so named by Prof. Babington. The locality is now under cultivation, and no longer yields it.]

[**R. MELANODERMIS**, Focke in Journ. Bot. (1890) 133, occurs in S. Hants and W. Gloucestershire.]

R. Babingtonii, Bell-Salter in Ann. & Mag. Nat. Hist. xv. (1845) 307. Rogers' Key, 31.

Native. Septal. Hedges and heathy places. Locally common. Shrub. July-August.

First found in Berkshire by the author in 1886.

2. **Ock**. Frilford, 1886. Near Bagley Wood.

3. **Pang**. Tilehurst.

4. **Kennet**. Mortimer, locally abundant, *W. M. Rogers*. Greenham Common. Enborne Street. Newbury Wash. Walbury Hill at 700 feet.

5. **Loddon**. Blackwater. Sandhurst. A very glandular form occurs in the grounds of the Wellington College Hotel.

It is found in Oxfordshire, Hants (Enborne), Surrey, and W. Gloucestershire. The Oxfordshire specimens of '*R. festivus*' are probably this species.

R. Lejeunei, Weihe & Nees, l. c. i. 683 & Rubi Germ. t. 31 (1826). Var. **ERICETORUM** (Lefev. in Bull. Soc. Bot. France, xxiv. (1877) 218, as a species).

R. linguifolius, Index Kewensis. Syme, E. B. iii. 187. Nyman, 219. Native. Ericetal. Heathy places. Local and rare. Shrub. July-Aug. First found in Berkshire by the author in 1889.

2. **Ock**. Kennington Lane (not typical). Near Uffington (teste Dr. Focke).

3. **Pang**. Ashampstead. Tilehurst. Hermitage.

4. **Kennet**. Mortimer, *W. M. Rogers*.

5. **Loddon**. Binfield, *F. A. Rogers*. Between Twyford and Maidenhead. Bearwood, 1889. Early. Hurst. Bagshot (not typical). Sandhurst.

It is only recorded from Surrey of the bordering counties.

[**R. MUTABILIS**, Genev. in Mém. Soc. Acad. Maine-et-Loire, viii. (1860) 84, is recorded for Surrey, and **R. CAVATIFOLIUS**, P. J. Muell. Bab. in Journ. Bot. (1878) 144, for W. Gloucestershire only of the bordering counties.]

R. Bloxamii, Lees, in Steele's Handb. Field Bot. 55 (1847).

Syme, E. B. iii. 180. Nyman, 219. Fl. Oxf. 98. Rogers' Key, 36.

Native. Ericetal. Heathy places. Local. Shrub. June-August.

First found in Berkshire by the author, 1891.

4. **Kennet**. Greenham Common.

R. Bloxamii is found in Oxfordshire, South Hants, Surrey, and S. Wiltshire.

R. scaber, Weihe & Nees in Bluff & Fingerh. l. c. i. 683 (1825).

Top. Bot. 143. Fl. Oxf. 97. Rogers' Key, 31. Weihe & Nees, Rubi Germ. t. 32 (1826).

Native. Sylvestral. Woods and heathy places, on sandy soils. Local, but abundant where it occurs. Shrub. July-August.

First found in Berkshire by the author in 1886.

2. *Ock*. As a plant with very glaucous barren stems, abundant and widely distributed on the north and south-western sides of Boar's Hill. An allied form with less glandular stem occurs at Tubney.

4. *Kennet*. Theale.

R. scaber occurs in Oxfordshire on Shotover Hill, but is not recorded for the other bordering counties.

R. fuscus, Weihe & Nees, l. c. i. 681 & Rubi Germ. t. 27 (1826).

Rogers' Key, 31.

Native. Dry woods and heathy places. Local. Shrub. July-August.

First found in Bagley Wood by the Rev. A. Bloxam, *Herb. Oxf.* 1840.

1. *Isis*. Wytham Wood.

2. *Ock*. Bagley Wood, *Bloxam*. A less glandular form is found in Hen Wood, and a form which was referred by Prof. Babington to *R. Reuteri* on Boar's Hill. In a wood between Wittenham and Didcot.

5. *Loddon*. Near Twyford. (A form also occurs, which the Rev. W. M. Rogers says, appears to be what Dr. Focke calls *R. macrostachys*, P. J. Muell. in *Flora* (1858', 150, and is kept as a distinct species in *Index Kewensis*.)

R. fuscus is recorded for Wilts, Oxfordshire, and W. Gloucestershire.

R. pallidus, Weihe & Nees, l. c. i. 682 & Rubi Germ. t. 29 (1826).

E. B. Suppl. ed. 3, 102. Rogers' Key, 32.

Native. Septal. Hedges on sandy soil. Very local. Shrub. July-September.

First found in Berkshire by the author in 1896.

3. *Pang*. In hedges between Hermitage and Frilsham, but nearer to the former place.

R. pallidus is recorded for Hants, and with some doubt for Oxfordshire.

[***R. LONGITHYRSIGER***, Lees, ex Bab. in *Journ. Bot.* (1878) 177. Bab. Brit. Rubi, 231.

R. pyramidalis, Bab. Man. Brit. Bot. ed. 3, 101 (1851), not of Kaltenbach, recorded for W. Gloucestershire only.]

R. foliosus, Weihe & Nees, l. c. i. 682 & Rubi Germ. t. 28.

Rogers' Key, 34.

R. Guenterii, Bab. not *R. Guenterii* of Weihe & Nees. *R. flexuosus*, P. J. Muell. & Lefèv. in *Pollichia* (1859) 240, not of Lejeune.

E. B. Suppl. ed. 3, 113. *Fl. Oxf.* 99. Syme, E. B. iii. 190.

Native. Sylvestral. Woods on sandy soil. Locally common. Shrub.
July–August.

First found in Berkshire by the author in 1886.

2. **Ock.** Bagley Wood. Frilford. Hen Wood. Wittenham Wood.
3. **Pang.** In West Brook Copse in immense quantity, very fine and characteristic. Cold Ash Common near the junction with Fence Wood, *W. M. Rogers*. Near Oare Wood. Hermitage. Tilehurst.
4. **Kennet.** Copse east of Snelsmore Common. Mortimer, especially between the Vicarage and Common, *W. M. Rogers*. Silchester, 1886. Aldermaston. Near Chieveley. (The Silchester plant was referred to the var. *SALTUM* by Dr. Focke.)
5. **Loddon.** Near Risely. Sandhurst.

R. foliosus is recorded for Hants, Surrey, and Oxfordshire.

R. rosaceus, Weihe & Nees, l. c. i. 685 & Rubi Germ. t. 36 (1826).

Top. Bot. 143. Syme, E. B. iii. 181. Rogers' Key, 37.

Native. Septal, &c. Hedges, woods, and heathy places. Local. Shrub.
June–August.

First found in Berkshire by the author in 1891.

2. **Ock.** Boar's Hill. Hen Wood, but not typical.
3. **Pang.** Hermitage.
4. **Kennet.** Mortimer, *W. M. Rogers*. Silchester. Aldermaston.
5. **Loddon.** Bearwood, and a form not typical. Windsor Great Park.

Var. *INFECUNDUS*, Rogers' Key, 38.

2. **Ock.** Boar's Hill.
3. **Pang.** Ashampstead Common, 1894. Hermitage.
5. **Loddon.** Binfield, *F. A. Rogers*. Bearwood.

Var. *HYSTRIX*, Bab. Lond. Cat. ed. 8, 12 (1886). *R. Hystrix*, Weihe & Nees in Bluff & Fingerh. Comp. Fl. Germ. i. 687 (1825) & Rubi Germ. t. 41 (1826). Syme, E. B. iii. 181. Nyman, 220. Fl. Oxf. 97.

2. **Ock.** A strong form occurs at Frilford Heath. Boar's Hill (teste Dr. Focke).
3. **Pang.** Ashampstead.
4. **Kennet.** Bucklebury. Mortimer (teste Dr. Focke).
5. **Loddon.** Early Heath (Dr. Focke says this is a very pretty form). Ambarrow.

Var. *BERCHERLENSIS*; this name may be provisionally applied to the bramble which is so widely distributed and which is locally so abundant in Berkshire. It was at first considered to be intermediate between *R. Hystrix* and *hirtus*, but more recently Dr. Focke and the Rev. *W. M. Rogers* place it without hesitation under the aggregate species *R. rosaceus* as a form which comes best under *Hystrix*, though departing from it somewhat towards vars. *infecundus* and *Purchasianus*, but unusually strong and so approaching *Hystrix*. It is a handsome bramble with elegant leaves and striking armature, both of the panicle and barren branches.

2. **Ock.** Abundant on the Boar's Hill range. 3. **Pang.** Abundant about Ashampstead, Hermitage, and Tilehurst. Bucklebury.
4. **Kennet.** Very abundant about Mortimer. 5. **Loddon.** Near Sandhurst.

R. rosaceus, as the aggregate species, is found in all the bordering counties.

[**R. POWELLII**, Rogers, in Journ. Bot. (1894) 47, was found on Shotover Hill near Oxford in 1895 by the Rev. W. M. Rogers; subsequently I have found it in another locality on the same hill, but differing slightly from the plant in the original station.]

[**R. ADORNATUS**, P. J. Muell. in Flora (1859), 234, is recorded for Surrey, South Hants, Bucks, and W. Gloucestershire.]

R. Koehleri, Weihe & Nees, l. c. i. 681 (1825) & Rubi Germ. t. 25.

Top. Bot. 144. Syme, E. B. iii. 185, t. 453. Fl. Oxf. 98. Rogers' Key, 39. Native. Septal, &c. Hedges, roadsides, heathy places and open woods. Locally common. Shrub. July–August.

First record. *R. glandulosus*, Mr. Bicheno in Sm. Engl. Fl. ii. 404, 1824, and first as British, and as *R. Koehleri* in Russell's Cat. 1839.

Var. **PALLIDUS**, Bab. Man. Brit. Bot. ed. 5, 106.

1. **Isis.** Pusey.

2. **Ock.** Near Oxford, *Boswell* in Brit. Contr. 1871. Boar's Hill. Bagley. (Also probably a hybrid with *R. Schlechtendalii*.)

3. **Pang.** Cold Ash Common, *W. M. Rogers* (the plant named by Babington *saxicolus*). Between Hermitage and Yattendon. Ashampstead. Near Tilehurst.

4. **Kennet.** Mortimer, 1886 (seen also there by Rev. *W. M. Rogers*, who describes it as fairly common). Burghfield. Aldermaston. Silchester, 1886. Greenham Common near the entrance to the Common from Newbury. Irish Wood, Kintbury. Hampstead Marshall. Woodhay.

5. **Loddon.** Binfield, *F. A. Rogers*. Maidenhead. Stubbing's Heath. Near Wargrave (probably this was Mr. Melvill's plant recorded in *Britten's Contr.*). Risely. Windsor Park. High Standing Hill. Near Bisham.

Var. **COGNATUS**, Rogers in Journ. Bot. (1895) 102. *R. cognatus*, N. E. Brown in E. B. Suppl. ed. 3, 101 (1892). *R. debilis*, Bab. in Journ. Bot. (1886) 229, not of Boulay.

2. **Ock.** Near Wittenham. 4. **Kennet.** Greenham. Enborne.

5. **Loddon.** Plentiful and characteristic at Ambarrow, and near the Staff College, Sandhurst. Near Blackwater.

Untypical plants have been met with as follows:

4. **Kennet.** By bushy roadside between Catmore and Stanmoor a luxuriant form perhaps coming to the var. *pallidus*, *W. M. Rogers*. A form, which is perhaps the same as the foregoing, occurs

plentifully near Newbury Wash Common. At Enborne a small strongly marked variety occurs with very fine leaf cutting.
 5. Loddon. A plant occurred at Bearwood which the Rev. W. M. Rogers says has some affinity with *rudis*, in spite of the very different armature. Dr. Focke marks it *R. Koehleri* with some doubt.

Plants named *R. Koehleri* for me by Dr. Focke have been seen at Bearwood and Greenham, and the Rev. W. M. Rogers has seen it at Catmore. The aggregate species occurs at Didcot and elsewhere, and is recorded for all the bordering counties.

[*R. PLINTHOSTYLUS*, Genev. in Mém. Soc. Acad. Maine-et-Loire, xxiv. (1868) 108, occurs in W. Gloucestershire.]

R. Marshalli, Focke & Rogers in Journ. Bot. (1895) 103.

R. Koehleri, var. *hirsutus*, Rogers in Journ. Bot. (1892) 340.

Native. Ericetal. Heaths and bushy hedgerows in heathy places. Locally common. Shrub. July–August.

First found in Berkshire by the author in 1888.

2. Ock. Boar's Hill (Dr. Focke agrees to the name).

4. Kennet. A plant between this and var *cognatus* occurs at Greenham Common.

5. Loddon. Ambarrow and Finchampstead Ridges, 1891.

It occurs in Surrey, about Crowell in Oxfordshire, and in W. Gloucestershire.

[*R. FUSCO-ATER*, Weihe & Nees in Bluff & Fingerh. l. c. i. 681 (1825), is recorded for Surrey; the *R. fusco-ater* of Beesley's *Banbury List* in *Fl. Oxf.* 98 is a *corylifolius* hybrid.]

R. viridis, Kalt. Fl. des Aachen. Beck. 284 (1845).

R. incultus, Wirtg. in Syn. Rubi Germ. 369. Rogers' Key, 41.

Native. Sylvestral. Woods and open bushy places. Local. Shrub. July–August.

First found in Berkshire by the author in 1892.

2. Ock. Boar's Hill (typical according to Dr. Focke).

5. Loddon. Binfield, F. A. Rogers.

It occurs in the counties of Surrey, Oxford, and W. Gloucestershire.

[*R. DIVEXIRAMUS*, P. J. Muell. in Genev. Mon. Rub. ed. 2, 88, occurs in W. Gloucestershire.]

R. saxicolus, P. J. Muell. in Pollichia (1859) 202.

R. humifusus of Bab. but not of Weihe & Nees. Rogers' Key, 43.

Native. Ericetal. Woods and bushy places in heathy districts. Local. P. Shrub. July–August.

First found in Berkshire by the author in 1886.

4. Kennet. A small form, apparently this, from Ufton Wood, 1894,

Rev. W. M. Rogers. Silchester, 1886. ('Nearer the type than other forms named so by British botanists,' Dr. Focke.)

It also occurs in Oxfordshire near Crowell.

The plants from Cold Ash Common were named *saxicolus* by Prof. Babington, but the Rev. W. M. Rogers now thinks that they are *R. pallidus*, Bab., not of W. & N.

[**E. BELLARDI**, Weihe & Nees, l. c. i. 688 (1825). Rubi Germ. t. 44.

R. dentatus, Blox. *R. glandulosus*, auct. var. *R. hybridus*, auct. var.

The plant from Boar's Hill, so named for me by Prof. Babington, proves to be a form of *R. scaber*. The plant named *R. dentatus* for the Rev. W. M. Rogers by Prof. Babington from Cold Ash Common, in Journ. Bot. (1887) 340, Mr. Rogers now 'has an impression may have been a *foliosus* hybrid.'

R. Bellardi has been recorded for Hants, Surrey, and Oxfordshire.]

E. hirtus, Walde. & Kit. Pl. Rar. Hung. ii. 150 (1805). Rogers' Key, 44.

R. glandulosus, Bell. var. *hirtus*, Bab. Brit. Rubi, 250 (1869). E. B. Suppl. ed. 3, 117. Weihe & Nees, Rubi Germ. t. 43 (1827). Nyman, 220.

Native. Heaths and heathy woods. Shrub. July-September.

The occurrence of this plant in Berkshire is not certainly ascertained. My plant from Boar's Hill, which was named by Prof. Babington *R. hirtus*, var. *rotundifolius*, is *R. rosaceus*, var. *bercheriensis*. The Rev. W. M. Rogers informs me that he cannot now feel sure, in the absence of specimens, whether the plants from Langley Wood, Sandy Lane, Fence Wood in the Pang district, and from Beedon Wood and Copse near Snelsmore Common, which he recorded as *R. hirtus* in Journ. Bot. (1887), are really *R. hirtus*. He thinks the plant must have been very like the Devon *rotundifolius* (or an allied form), which was the only form of *hirtus* which he then knew.

Of a plant which I gathered very late in the season of 1895 near Enborne, the Rev. W. M. Rogers says 'It is, I think, a form of the *hirtus* group,' and another, which is common in a copse near the brickyards on the Kimmeridge Clay on Boar's Hill, he says 'may belong to *R. hirtus*'; but the specimens were gathered late in September, so that we must wait for another season before being positive.

R. rosaceus, var. *bercheriensis*, approaches *R. hirtus* in some particulars, and, as we have seen, has been mistaken for it.

R. hirtus has been recorded for all the bordering counties.

[**E. BRITANNICUS**, Rogers, in Journ. Bot. (1894) 49, occurs in Surrey.]

E. dumetorum, Weihe & Nees, in Boenn. Prod. Fl. Monast. 153 (1824).

Rubi Germ. t. 45. Rogers' Key, 47. Nyman, 221.

Native. Hedges. Locally abundant, occurring in all the districts, not only on sandy, but also on stiff clay soils. Shrub. June-September.

First found in Berkshire by the author in 1880.

Var. *FEROX*, Weihe in Weihe & Nees Rubi Germ. t. 456 (1826).
R. horridus, Schultz, not of Weihe.

1. *Isis*. Between Botley and Eynsham with other forms of the aggregate plant, and a hybrid with *R. corylifolius*.
2. *Ock*. Near Tubney.
3. *Pang*. Near Oare. Hermitage.
5. *Loddon*. Near Twyford.

Var. *DIVERSIFOLIUS* (Lindl., Syn. 93, 1829, as a species).

Rogers' Key, 47. Nyman, 221. Fl. Oxf. 98. Syme, E. B. iii. 187.

1. *Isis*. Wytham. Near Besilsleigh.
2. *Ock*. Near Tubney. Drayton.
3. *Pang*. About Beedon, *W. M. Rogers*. Curridge. Tilehurst. Hermitage.
4. *Kennet*. Along the high-road for four miles going out of Newbury towards Abingdon. One of the best marked and most general brambles of the lanes and bushy places in both districts (about Beedon), *W. M. Rogers*. Mortimer, *F. Tufnail*. Greenham. Burghfield. A plant, which is probably a hybrid with *R. leucostachys*, occurs at Mortimer.
5. *Loddon*. A form which is near *diversifolius* occurs at Sandhurst and near Hurst.

The plant from Beedon, which was named var. *fasciculatus* by Prof. Babington in Journ. Bot. (1888) 156, was probably only a form of *dumetorum*.

Plants which, I think, are hybrids of *R. dumetorum* with *caesius*, with *corylifolius*, with *leucostachys*, and with *ulmifolius* occur.

The brambles which occur in our clay soils are almost limited to *R. caesius*, *R. corylifolius*, *R. dumetorum*, *R. ulmifolius*, and *R. leucostachys*.

R. dumetorum occurs in all the bordering counties.

R. corylifolius, Sm. in E. B. t. 827, and Fl. Brit. 542 (1800).

Rogers' Key, 48. Syme, E. B. iii. 192, t. 455. Nyman, 221. Fl. Oxf. 99. Native. Septal. Hedges. Common and widely distributed. Growing indiscriminately on clay, limestone, and sand. Shrub. June-September.

First record. *Rubus vulgaris major fructu albo*. The Common greater Bramble-bush with White berries. Found accidentally in a hedge not far from Oxford, Bobart in Ray, Syn., ed. 2, 309, 1696. *R. corylifolius* is included in Russell's Cat. of 1839 and in Britt. Contr. 1871, in the latter work on the testimony of Mr. J. C. Melvill from Wargrave. The variety *SUBLUSTRIS* was recorded by the author in the Rep. of the Bot. Rec. Club for 1880.

Var. *SUBLUSTRIS* (Lees, as a species), Leighton in Phyt. (1848) 160 and 165, is the commoner form and is found in all the districts, not only on the sandy soils, but also and perhaps more commonly on the clays, in all the districts.

Var. *CYCLOPHYLLUS*, Lindeb. = var. *conjungens*, Bab. Man. Brit. Bot. ed. 3, 103 (1851).

1. *Isis*. Cumnor. Appleton.
2. *Ock*. Near Kennington. Boar's Hill. Wittenham. Frilford.
3. *Pang*. Hermitage, *W. M. Rogers*. Near Bradfield. Compton. Yattendon.
4. *Kenet*. Padworth. Theale. Greenham.
5. *Loddon*. Sonning. Sandhurst. Near Windsor.

R. corylifolius is found in all the bordering counties.

R. Balfourianus, Blox. ex Bab. in Ann. & Mag. Nat. Hist. xix. (1847) 86.

Rogers' Key, 49. Syme, E. B. iii. 192. Nyman, 221. Fl. Oxf. 99.

Native. Septal. Hedges. Chiefly on clay soil. Local. Shrub. July-August.

First recorded on the authority of Mr. Bicheno in *Bab. Brit. Rubi*, 260, 1869. Mr. Bicheno probably found it about the commencement of the present century.

1. *Isis*. Cumnor. Near Shrivenham.
2. *Ock*. NE. side of Boar's Hill Range. Bagley Wood.
4. *Kenet*. Sheen, *Bicheno*. Greenham. Near Newbury.

R. Balfourianus is recorded from all the bordering counties.

A bramble, which I gathered in 1890 near Silchester, Dr. Focke says is perhaps *R. glaucovirus*, Maas. in Verh. Bot. Ver. Brand. 1870, p. 162, a rare German form which is kept as a distinct species in *Index Kewensis*.

R. caesiuss, Linn. Sp. Pl. 493 (1753). *The Dewberry*.

R. repens fructu caesio, Goodyer in Ger. Em. 1271.

Top. Bot. 148. Syme, E. B. iii. 195, t. 456. Nyman, 221. Fl. Oxf. 100.

Native. Septal. Hedges, ditches, stream-sides, &c. Usually in low situations and clayey soil. Common and generally distributed. Shrub. May-August.

First record. *R. caesiuss*, Dr. Noehden, in *Mavor's Agr. Berks*, 272, 1809.

A very variable plant, but at present the varieties included in our British lists are by no means clearly defined.

Var. *TENUIS*, Bab. Man. Brit. Bot. ed. 5, 110, has been noticed in Hen Wood, Wytham, and elsewhere.

Var. *ARVENSIS*, Wallr. Sched. Crit. 228 (1822) = var. *ulmifolius*, Bab. Man. Brit. Bot. ed. 5, 110 (1862), occurs in Wytham Wood, &c.

Var. *PSEUDO-IDAUS*, Weihe & Nees, Rubi Germ. t. 466 (1827) = *R. idaeus* × *caesiuss*. This hybrid I have seen with both parents near Kintbury, and also near Radley Wood.

R. CAESIUS × *CORYLIFOLIUS* occurs near South Hinksey, near Cumnor, Ashampstead, Appleton.

R. caesiuss occurs in all the bordering counties.

[**R. SAXATILIS**, Linn. Sp. Pl. 494 (1753), occurs in Gloucestershire.]

The foregoing list of Berkshire Brambles owes what degree of completeness it possesses to the work of my friend the Rev. W. M. Rogers, whose knowledge of the British forms of this critical genus is probably unsurpassed. He has paid three separate visits to Berkshire, when the Brambles were made a special study, but in addition to this personal work he has, with unwearied kindness, examined my rather bulky gatherings of the last few years; indeed, with the exception of *R. rhombifolius* and *R. mucronatus*, he has had all the species in my list under his notice. Few county lists, therefore, have the same degree of unity of nomenclature. In my earlier years' collecting I owe much to my friend Dr. Focke of Bremen, for kindly naming specimens; he has also visited Boar's Hill, that very interesting locality to the batologist, when he discovered the rare *R. sulcatum*. This opportunity is gladly taken to offer my sincere thanks for the kind assistance generously given me by these well-known authorities. The Rev. W. M. Rogers' *Key to British Rubi* originally appeared in the *Journ. Bot.* Apr. 1892 to Feb. 1893.

GEUM, Linn. Gen. n. 561 (*Caryophyllata*, Tournef. Inst. t. 151).

G. urbanum, Linn. Sp. Pl. 501 (1753). *Avens*, Herb Bennet.

Caryophyllata, Gerard, 842. *C. urbana*, Scop. Fl. Carn. ed. 2, ii. 364.

Top. Bot. 130. Syme, E. B. iii. 197, t. 457. Nymman, 230. Fl. Oxf. 102.

Native. Septal. Woods, thickets, and hedges, preferring shady situations. Common and widely distributed. P. May–August.

First record. *Geum urbanum*, Dr. Noehden, *Mavor's Agr. Berks*, 1809.

The *Avens* is too common to need an enumeration of localities. A form with seven petals has been seen in several places, and a larger flowered plant was seen by the Cole near Strattonborough Castle.

The roots have an odour somewhat resembling cloves, hence the name used by Gerard, &c. The outline of the leaves reminds one somewhat of *Smyrniolum*.

Geum urbanum occurs in all the bordering counties.

G. rivale, Linn. Sp. Pl. 501 (1753). *Water Avens*.

Caryophyllata montana purpurea, Ger. Em. 995. *C. rivalis*, Scop. l. c. 365.

Top. Bot. 130. Syme, E. B. iii. 200, t. 459. Nyman, 230. Fl. Oxf. 103.

Native. Pratal. Meadows and bushy places on peaty soil, trenches by railways, &c. Locally common. P. May–July.

First record. *Caryophyllata montana*. In the King's meede by Redding, E. Ashmole and J. Watlington, MSS. in [How's] *Phyt. Brit.* about 1652.

G. rivale, Newbury, Mr. Gotobed in the *Bot. Guide*, 1805.

3. **Pang.** Very plentiful by a bridge over the Kimber between Bradfield and Standford Dingley, *Armstrong*. Rather frequent in the meadows between Bradfield and Tidmarsh.

4. **Kennet.** Near Reading, in the King's Meedes, *Ashmole* and *Watlington*. [Now extinct.] Kintbury, *Lightfoot MS.* Banks of the Kennet near Newbury, *Gotobed*, l. c. Frequent in North Croft, *Russell's Cat.* Theale meadows, *R. Walker*. Side of the Canal, about a mile from Hungerford, 1833, *Burt*, in *Buxt. Phaen. Bot.* Burghfield meadows, *Tufnail*. Woodhay, *Weaver*.

Abundant in many of the Kennet meadows and in the trenches by the railway from Hungerford to Reading, especially plentiful about Theale, Midgham, and Aldermaston.

It will be observed that *G. rivale* is absent from the districts of the Isis, the Ock, and the Loddon. Its absence is difficult to account for; it evidently prefers a peaty soil, but the geological character of the Cherwell district in Oxfordshire, in which it occurs, is not essentially different from that of the Isis, nor are the physical characters apparently the reason. It is often associated with *Carex paniculata*, but the distribution of the two plants is by no means identical.

G. rivale is unrecorded for Bucks, Surrey, or Gloucestershire.

G. intermedium, Ehrh. Beitr. vi. 143 (1791).

G. urbanum \times *rivale*, Reichb.

Top. Bot. 130. Syme, E. B. iii. 199, t. 458. Nyman, 230. Fl. Oxf. 103. Native. Coppices, meadows. Very local and rather rare. P. June–September.

First found by the author and recorded in *Bot. Exch. Club*, 1892.

3. **Pang.** In a moist spinney on peaty soil in the meadows between Bradfield and Tidmarsh.

4. **Kennet.** Near Newbury.

I had the plant from Tidmarsh in cultivation and it retained its characters. The seeds were mostly barren, but Mr. Marshall of Ely told me that he had succeeded in raising plants which came fairly true to the parent form. At Newbury a plant occurred which was nearer *G. rivale*; it is the *G. rivali-urbanum* of Reichenbach, which has drooping flowers and brown calyx, but with the petals showing unmistakeable evidence of the *urbanum* parentage.

Var. *rubifolium* (Lej. Rev. 103, as a species) is the reddish-petalled form, with a more emarginate apex. A proliferous form is the 'Childing Avens' of Petiver's Herb. Brit. xl. 4.

Dr. Bell-Salter produced *Geum intermedium* by artificial fertilization. He found that the offspring not only closely resembled each other, but that they were fertile, and the intermediate characters were transmitted unchanged through several generations—in fact, plants of this hybrid came up in his garden for many years after. See *Phyt.* iv. (1852) 737. In support of this statement may be adduced the fact that a specimen of *G. urbanum* \times *rivale*, brought from Bradfield, produced good seed. These seeds were sown in garden soil at Oxford, and in Mr. B. S. Ogle's garden at Heyford. Plants of the third generation were practically similar to the original specimen.

It may be stated that in the districts of the Isis and Ock where *G. rivale* is absent, *G. urbanum* does not vary in the colour or shape of its petals, and the statement holds true of Northamptonshire, where I have never seen *G. rivale* growing; but in that portion of Oxfordshire and Berkshire where both species are found, plants having intermediate characters may be met with.

G. intermedium is recorded from Hants, Wilts, and Oxfordshire.

FRAGARIA, Linn. Gen. n. 558 (Tournefort, Inst. t. 152).

F. vesca, Linn. Sp. Pl. 494 (1753). *Wild Strawberry*.

Top. Bot. 135. Syme, E. B. iii. 154, t. 438. Nyman, 222. Fl. Oxf. 100.

Native. Sylvestral. Woods and hedge-banks, generally distributed and locally common. P. March–September.

First record. *F. vesca*, Dr. Noehden, *Mavor's Agr. Berks*, 1809. Bagley Wood, Mr. Baxter's MSS. 1823.

Var. *SYLVATICA*, Herb. Fl. Ingricae, n. 206, b, is a form with larger leaves, which are longer petioled and more glabrous above, and with more rampant runners. It occurs on hedge-banks in many stations, as near Bradfield, Wytham, Wargrave, Enborne, &c.

F. vesca is found in all the bordering counties.

F. bercheriensis, Druce, in Rep. Bot. Exch. Club (1894) 446.

? *F. vesca* × *chiloensis*.

Native. Septal. Hedge-banks. Rare. P. May–June.

First recorded by the author in 1894.

4. Kennet. Near Tidmarsh.

5. Loddon. Sonning Cutting. Near Bowsey Hill, *Tufnail*. Near Windsor Park. In a hedge-bank, which is the border of a park near Haines Hill.

The plant has the large leaves with the open teeth and papyraceous texture of *F. chiloensis*, but the flowers and fruit are not larger than in normal *F. vesca*. The hairs on the stem are reflexed. Typical *F. vesca* grows in the ditches in the vicinity. The facies of the plant is fairly well represented in the plate of *F. dumetorum*, Jord. in Jordan and Fourreau's *Icones* (t. xxvi) *ad Florae Europae*, but *F. dumetorum* belongs to the group of *F. collina*, which has an erect calyx appressed to the succulent receptacle; in *F. bercheriensis* they are reflexed as in *F. vesca*, from which it is distinguished by its much larger size, by the larger leaves of a more papyraceous texture, with more open teeth, the upper surface of a darker green, the lower whitish in tint with very prominent leaf-veins, the calyx somewhat resembles *chiloensis*. From *F. chiloensis* it may be distinguished by its much smaller flowers and fruits. In the shade form of *F. vesca*, illustrated by the var. *sylvatica* in Herb. Fl., Ingricae, the plant is not so large nor are the leaves so markedly light in colour on the under-surface, and the leaf-cutting is more acute and the teeth closer together. The fact of its fruiting freely is not an absolute proof of its not being of hybrid origin.

Specimens were distributed through the Bot. Exch. Club in 1894; the editor, the Rev. W. R. Linton, reports that he has seen just the same plant in Norfolk and near Godalming in Surrey. Possibly our plant may be only an extreme form of *F. vesca*. Comparative cultivation is needed before we can decide definitely if the plant I have

provisionally called *F. bercheriensis* be of hybrid origin or a variety of *F. vesca*, or a sub-species bearing the same relation to *F. vesca* as *F. dumetorum* does to *F. collina*. Probably this plant is occasionally reported as *F. elatior*.

F. muricata, Linn. Sp. Pl. 495 (1753). Mill. Gard. Dict. ed. 8 (1768).
The Hautbois Strawberry.

F. moschata et dioica, Duchesne, Hist. Nat. Fraiss. 145 (1766). *F. magna*,
Thuill. Fl. Par. ed. 2, 254. *F. elatior*, Ehrh. Beitr. vii. 23 (1792).

Comp. Cyb. Br. 501. Syme, E. B. iii. 156, t. 439. Nyman, 222.
Fl. Oxf. 100.

Alien or denizen. Hedge-banks. Very rare. P. May-June.

First found in Berkshire by the author in 1886.

3. **Pang.** Near De la Bere, Pangbourn, *Tufnail*.

4. **Kennet.** Near Kintbury.

5. **Loddon.** In a hedge opposite the Whitening Factory at Warren Row, *Stanton*. The hedge is the border of an old orchard, and the plant, which does not appear to be in the orchard, has extended itself into the adjoining bushy common. Between Windsor and Cranbourn Park.

****F. CHILOENSIS**, Duchesne, Hist. Nat. Fraiss. 165 (1766).

F. vesca, var. *chiloensis*, Linn. Sp. Pl. 494 (1753).

Alien. This escape from cultivation is occasionally found in a semi-wild state, on hedge-banks and on railway-banks, &c. P. May-August.

2. **Ock.** Near the railway at Didcot.

4. **Kennet.** Newbury. Near Kintbury.

5. **Loddon.** Bracknell. Ascot. Sandhurst. Maidenhead.

POTENTILLA, Linn. Gen. n. 559 (*Quinquefolium*, Tournefort,
Inst. t. 153).

****F. NORVEGICA**, Linn. Sp. Pl. 499 (1753). Suppl. E. B. ed. 3, 71, t. 435 a.

Alien. Waste places. Rare. P. July-September.

5. **Loddon.** In a hedge near Twyford, and on a waste heap near the Railway Station in 1890. A solitary large plant by the watery ditch in a thick hedge between Blackwater and Sandhurst; no other introduced plant near.

F. Fragariastrum, Ehrh. Herb. 146 (1789), and ex Hall. f. in Ser.
Mus. Helv. i. (1818) 49. *Barren Strawberry.*

P. prostrata, Moench. Meth. 659 (1794). *P. sterilis*, Garcke, Fl. Deutsch.
ed. 4, 112 (1856). *Fragaria sterilis*, Linn. Sp. Pl. 495 (1753).

Top. Bot. 134. Syme, E. B. iii. 143, t. 427. Nyman, 228. Fl. Oxf. 102.

Native. Sylvestral. Woods, hedge-banks, heaths, &c. Common and generally distributed. P. January-November.

First record. *Fragaria sterilis*, *Mavor's Agr. Berks*, 1809. Bagley Wood,
Baxter's MS. 1823.

It is a little doubtful if the publication of Ehrhart's name dates from the issue of the Herb. in 1789. If that be not a valid publication, then the oldest

name appears to be *P. prostrata*, Moench, Meth. 659 (1794). Garcke's name contains the original trivial name used by Linnaeus.

P. Fragariastrum occurs in all the bordering counties.

P. silvestris, Neck. Delic. Gall.-Belg. i. 222 (1768). *Tormentil*.

P. Tormentilla, Necker, in Acad. Theod. Pal. ii. (1770) 491. *Tormentilla*, Gerard, 840. *T. erecta*, Linn. Sp. Pl. 500 (1753).

Top. Bot. 133. Syme, E. B. iii. 146, t. 430. Nyman, 227. Fl. Oxf. 102.

Native. Ericetal. Heaths, dry pastures, hedge-banks, &c. Locally common and widely distributed. P. April-September.

First record. Bulmarsh Heath, Mr. S. Rudge, 1800, in *Herb. Brit. Mus.*
Published as *Tormentilla officinalis*, Dr. Noehden, in *Mavor's Agr. Berks*, 1809.

In damp ground near Grandpont; it occurred with short (not rooting) prostrate stems and with shorter and broader leaflets and smaller flowers than usual. Probably the var. *humifusa*, Lecoq et Lamotte, Cat. Pl. Cent. 155.

P. silvestris is found in all the bordering counties.

****P. INCLINATA**, Vill. Hist. Pl. Delph. iii. 567, t. 45 (1780).

A casual on waste ground near Didcot Railway, 1896. A native of Europe.

P. procumbens, Sibth. Fl. Oxon, 162 (1794).

P. nemoralis, Nestl. Mon. Pot. 65 (1816), and of Petiver, *Tormentilla reptans*, Linn. Sp. Pl. 500 (1753).

Top. Bot. 133. Syme, E. B. iii. 147, t. 431. Nyman, 226. Fl. Oxf. 101.

Native. Sylvestral. Woods, heaths, hedge-banks, &c. Rather local, and not very common. Fonder of shade and moisture than the preceding species. P. June-September.

First record. *Pentaphyllum minus viride, flore aurea tetrapetala radicularis in terram ex geniculis demittens nobis . . . prope Besorsleigh et alibi in circumjacentis illis locis*, Morison, *Hist. Ox.* ii. 191, 1680.

1. Isis. Wytham. Appleton.

2. Ock. Besilsleigh, Morison. Bagley Wood. Boar's Hill. Wittenham.

3. Pang. Bucklebury. Ashampstead. Frilsham. Fence Wood.

4. Kennet. Brimpton. Padworth. Aldermaston. Enborne Street. Mortimer.

5. Loddon. Roadside across Bagshot Heath, Watson. Early Heath, Tufnail. Twyford. Binfield. Bulmarsh. Coleman's Moor. Bearwood. Finchampstead Leas. Windsor Park. Wellington. Sandhurst. Shurlock Row.

P. PROCUMBENS × REPTANS = *P. mixta*, Nolte, ap. Reichb. Fl. Germ. Excs. 743. Near Early Heath.

P. PROCUMBENS × SILVESTRIS = *P. suberecta*, Zimmeter . . . Gattung Potentill. 5, 1884. Has been seen at Bearwood.

P. procumbens is found in all the bordering counties.

P. reptans, Linn. Sp. Pl. 499 (1753). *Common Cinquefoil*.

Quinquefolium majus repens, C. B. Pin. 325. *Q. majus*, Gerard, 836.

Top. Bot. 133. Syme, E. B. iii. 148, t. 432. Nyman, 226. Fl. Oxf. 101. Native. Viatical. Hedge-banks, roadsides, cornfields, pastures, &c.

Common and generally distributed. Prefers dry, sunny situations. P. May–September.

First record. *P. reptans*. *Common Cinquefoil*, *Mavor's Agr. Berks*, 270, 1809.

Var. **MICROPHYLLA**, Trattinick, Mon. Rosac. iv. 80 (1824). A small form occurring in dry soil, which has been seen in all the districts, as at Tubney, Besilsleigh, Lowbury, Ilsley, Wokingham, Cookham, &c. This extreme form, which is stated to retain its characters under cultivation, appears very different from the type, yet apparently united by a chain of intermediates.

P. REPTANS × **SILVESTRIS**. This hybrid has been noticed at Tilehurst, near Newbury, near Binfield, Early, and Blackwater, but the distribution of the *Potentilla* hybrids is by no means worked out.

P. reptans occurs in all the bordering counties.

P. Anserina, Linn. Sp. Pl. 495 (1753). *Silver Weed*, *Wild Tansy*.

P. argentina, Huds. Fl. Angl. 195 (1762). *Argentina*, Gerard, 841.

Anserina, Tragus.

Top. Bot. 132. Syme, E. B. iii. 149, t. 433. Nyman, 223. Fl. Oxf. 101.

Native. Viatical, glareal. Waysides, commons, clayey cornfields, and in depressions on the chalk downs. Common and widely distributed. P. May–September.

First record. Sonning, *Mr. S. Rudge*, in *Herb. Brit. Mus.* Published in *Mavor's Agr. Berks*, 1809.

Var. **SERICEA**, Koch, Syn. Fl. Germ. 213, which has both sides of the leaves covered with a silvery pubescence, is the commoner form, and it is often very luxuriant by our river-banks. Some of the dry valleys on the chalk downs are covered with it so as to be noticeable from a considerable distance, and many of our roadsides are bordered with a copious growth of the plant which, when in flower, forms a pleasing object; it is also conspicuous in the grassy rides in woods.

Var. **NUDA**, S. F. Gray, Nat. Brit. Pl. 580 (1821) = var. *viridis*. Koch, l.c., in its extreme condition is a very different form, having one or both surfaces of the leaves nearly glabrous; it is usually found in damp grassy places, especially on goose greens, as at Cookham, Abingdon, Marcham, Hungerford, Newbury, Twyford, Kennington. Mortimer, &c.

Var. **GLABRATA**, Sonder, Fl. Hamb. 290, is a closely allied form, being a small nearly glabrous plant with elegantly cut leaves, which occurs at Bowsey Hill, Bray, in the Sandford and Iffley meadows, &c. These three plants are not true varieties, but simply forms of one species

linked together by a chain of intermediates. Moisture does not appear to be a necessary factor in producing variations.

P. Anserina occurs in all the bordering counties.

P. argentea, Linn. Sp. Pl. 497 (1753). *Tormentil, Cinquefoil.*

Quinquefolium folio argenteo, C. B. Pin. 325.

Top. Bot. 132. Syme, E. B. iii. 151, t. 435. Nyman, 224. Fl. Oxf. 101. Native. Glareal. Roadsides and hedge-banks on sandy soil in sunny places. Very local and rather rare. P. June-July.

First record. *Hoary Cinquefoil*, Dr. Noehden. Meadows, pastures, &c., on a gravelly soil, *Mavor's Agr. Berks*, 1809.

2. **Ook.** Near Besorsleigh [Besilsleigh] in the fields towards Abingdon, *MS. in Britt. Contr.* About Marcham, *Walker*. By the railway at Didcot, but evidently introduced with other casuals in this locality.

3. **Pang.** Bradfield, *Jenkinson*. Near Cold Ash Common.

4. **Kennet.** Ashwood Green, *Weaver*. Between Newbury and Cold Ash Common.

5. **Loddon.** Near Marlow, *Müll in Phyt.* i. 986, 1843. (Probably in Bucks.) Hedge-bank near Lucas' Hospital, Wokingham. By Bulmarsh Park, near Early, near a footpath. Old brickfield, Wellington College Grounds, *Penny*. By Loddon Bridge, *Tufnail*. Gravel pit near Bray Wick. By roadside near Maidenhead. Plentiful in a gravelly lane between Coleman's Moor and Twyford.

Where *P. argentea* occurs *Dianthus Armeria*, *Carum segetum*, *Caucalis nodosa*, and *Arabis perfoliata* should be looked for.

P. argentea is recorded for all the bordering counties except Gloucestershire, but it is very rare in Oxfordshire.

P. palustris, Scop. Fl. Carn. ed. 2, i. 359 (1772). *Purple Marsh Cinquefoil.*

P. Comarum, Nestl. Mon. Potent. 36 (1816). *Comarum palustre*, Linn.

Sp. Pl. 502 (1753). *Pentaphyllum rubrum palustre*, Gerard, 836 (1597).

Top. Bot. 134. Syme, E. B. iii. 153, t. 437. Nyman, 222. Fl. Oxf. 101. Native. Paludal. Boggy places. Very local and rare. P. June-August.

First record. *Comarum palustre*, Rev. C. W. Penny and Mr. H. Reeks in *Britt. Contr.* 1871.

4. **Kennet.** Marshy and boggy meadows about Kintbury, *Reeks, l.c.*

5. **Loddon.** Heath Pool, near Wellington College, *Penny, l.c.* !

Our plant is the sub-glabrous, not the densely hairy form, the var. *villosa*, S. F. Gray, which I have seen in Anglesea.

P. palustris is recorded for Surrey, Hants, and Wilts, and has been recently found by Mr. L. Lester, M.A., between Oxford and Woodstock in Oxfordshire.

ALCHEMILLA, Linn. Gen. n. 153 (*Alchimilla*, Tourn. Inst. t. 289).

A. arvensis, Scop. Fl. Carn. ed. 2, i. 115 (1772). *Parsley Piert*.

Aphanes arvensis, Linn. Sp. Pl. 123 (1753). *Percepier Anglorum*, Lob.

Top. Bot. 157. Syme, E. B. iii. 136, t. 422. Nyman, 238. Fl. Oxf. 111. Native. Glareal. Dry sandy fields, banks, and pastures, and on mud-topped walls in and about villages. Locally abundant and widely distributed, being least frequent on the grassy chalk downs, from some portions of the northern escarpment of which it may be absent. Often seen on ant-hills in grassy places. A. May–October.

First record. North Heath, Mrs. Russell's *Newbury Cat.* of 1839.

A. arvensis is found in all the bordering counties.

A. vulgaris, Linn. Sp. Pl. 123 (1753). *Lady's Mantle*.

Top. Bot. 156. Syme, E. B. iii. 137, t. 423. Nyman, 238. Fl. Oxf. 110. Native. Sylvestral. Pastures, grassy places in woods. Very local and rare. P. May–August.

First record. *Alchimilla*, Lion's Foot or Ladies Mantle. In many places in Berkshire, *Gerard's Herbal*, 803, 1597. *Alchemilla vulgaris*, Bear's-foot, Dr. Noehden. Frequent in meadows and pastures. The whole plant is astringent, and it has been found injurious if not fatal to cows, where it is abundant, *Mavor's Agr. Berks*, 1809.

2. *Ock*. Roadside through Bagley Wood going to the Fox, *Thurland*, 1873. Roadside near the Brickyards, Foxcombe Road, 1890, *Sister Jane Frances*. Probably these refer to the same locality.

4. *Kennet*. Kintbury, Elcot, *Reeks in Britt. Contr.* Woodhay. Meadows near Shaw, *Weaver*. Near Wickham, *Miss Bowen*. Plentiful near Bagnor Marsh.

5. *Loddon*. In a damp meadow near the Spring at Crazey Hill, *Stanton*. Frequent there in 1896, *Tufnail*.

Var. *FILICAULIS* (Buser, in Bull. de L'Herb. Boiss. (1893), App. 22, as a species). Shaw, *Jackson*; this is the plant from Bagnor Marsh and probably from the other Berkshire localities. Perhaps *A. vulgaris*, var. *minor*, Huds. Fl. Angl. ed. 2, 71, will be found to be synonymous.

A. vulgaris is found in all the bordering counties.

AGRIMONIA, Linn. Gen. n. 534 (Tournefort, Inst. t. 155).

A. Eupatoria, Linn. Sp. Pl. 448 (1753). *Agrimony*.

Eupatorium Veterum seu Agrimonia, C. B. Pin. 321. *A. vulgaris*, Park. 594.

Top. Bot. 154. Syme, E. B. iii. 129, t. 417. Nyman, 238. Fl. Oxf. 109. Native. Pascual. Roadsides, hedge-banks, wood-borders, copses, &c.

Locally abundant and widely distributed. P. June–September.

First record. *A. eupatoria*, Dr. Noehden, *Mavor's Agr. Berks*, 1809.

The Agrimony is too plentiful to need detailed localities ; it reaches its maximum of frequency perhaps on the grassy borders of copses on the chalk hills, and on the whole appears to prefer stiff soils to sandy and gravelly situations. In damp woods and shady hedges it becomes much more luxuriant, and is probably the var. *SEPIUM*, Brébisson, Flore de la Normandie, 110.

Agrimonia occurs in all the bordering counties.

A. odorata, Mill. Gard. Dict. ed. 8, n. 3 (1768), and of Camerarius.

Top. Bot. 154. Syme, E. B. iii. 131, t. 418. Nyman, 238. Fl. Oxf. 110.

Native. Pascual. Woods and grassy places. Local. P. July-August.

First recorded by the author in the *Flora of Oxfordshire*, 1886.

1. **Isis.** Appleton.
2. **Ock.** Near Tubney.
3. **Pang.** Sulham woods, *Tufnail*. Streatley, *Flora Oxf.* Ilsley. Ashampstead. Near Hermitage.
4. **Kennet.** Greenham.
5. **Loddon.** Windsor Forest. Twyford. Swinley. Wokingham. Haines Hill.

A. odorata has been recorded for all the bordering counties except Bucks and E. Gloucestershire, but I have seen it in the former county near Stoke Pogis.

Obs. Although the extreme form appears to be fairly distinct from ordinary *A. Eupatoria*, plants occur which are of an intermediate character. Mr. Townsend, in *The Flora of Hampshire*, says that 'the furrows in the fruit of *A. odorata* extend to the spines, and these are reflex. In *A. Eupatoria*, the furrows do not extend to the spines, and these are not reflex.' Babington says that '*Eupatoria* has the calyx tube furrowed to the base, exterior spines spreading, *odorata* not furrowed, and exterior spines declining.' Syme says 'that the furrows in *odorata* do not extend below the middle of the tube.' The fruit of *A. odorata* usually has two achenes, *A. Eupatoria* has usually only one. See *Notes Pl. Rares ou Critiques de la Bely.* fasc. i. 12 (1859).

POTERIUM, Linn. Gen. n. 948 (*Pimpinella*, Tournefort, Inst. t. 68).

P. Sanguisorba, Linn. Sp. Pl. 994 (1753). *Salad Burnet*.

Sanguisorba minor, J. Bauhin, Hist. iii. 113. *P. dictyocarpum*, Spach. in Ann. Sc. Nat. 3^{me} Ser. v. (1846) 33.

Top. Bot. 155. Syme, E. B. iii. 133, t. 419. Nyman, 239. Fl. Oxf. 111.

Native. Glareal. Dry calcareous pastures, chalk downs, railway-banks, &c. Locally abundant, and found in all the districts. P. May-August.

First record. *P. sanguisorba*. Upland Burnet on a calcareous soil.

Sometimes cultivated in the county, *Mavor's Agr. Berks*, 1809.

1. **Isis.** Cumnor meadows, *Bart. Phaen. Bot.* t. 38. Wytham. Meadows near the Cole. Bourton. Near Faringdon. Lechlade.

number of few-flowered spikes, was found growing with the ordinary form at Bradfield in 1894.

P. polygamum is found in Hants, Wilts, Surrey, Bucks (near Marlow), and Oxfordshire.

P. officinale, A. Gray, in Proc. Amer. Acad. vii. (1868) 340. *Great Burnet*.

P. sylvestris, Gerard, 889. *Sanguisorba officinalis*, Linn. Sp. Pl. 116, a (1753).

Top. Bot. 154. Syme, E. B. iii. 132, t. 421. Nyman, 239. Fl. Oxf. 111.

Native. Pratal. Damp meadows. Locally common. P. May–August. First record. Burnet. It grows in all our Oxford meadows, *MS.* in

Lyte's Herball, 1660. *Sanguisorba officinalis*, Mr. Bicheno in *Mavor's Agr. Berks*, 1809.

1. **Isis.** Cumnor meadows, abundant, *Baxt. Phaen. Bot.* n. 269. In the Wytham meadows. Buscot. Near Appleton.

2. **Ook.** In all the pastures about Blewbury, *Lousley*, in *Russell's Cat.* Sandford in Thames meadows, *Dyer.* Streatley, *Pamplin.* Radley. Abingdon.

3. **Pang.** In all the pastures about Hampstead Norris, *Lousley*, l. c. (not seen by me). Near Tilehurst.

4. **Kennet.** Ditches about Greenham Mill, *Bicheno*, l. c. Theale. Padworth. Benham. Thatcham. Southcote. Kintbury.

5. **Loddon.** Sonning, *Rudge* (where it is still abundant). Twyford. Near Sandhurst and Wellington College.

P. officinale occurs in all the bordering counties.

ROSA, Linn. Gen. n. 556 (Tournefort, Inst. t. 408).

R. spinosissima, Linn. Sp. Pl. 491 (1753), var. *PIMPINELLIFOLIA* (Linn. Syst. ed. 10, 1062 (1759), as a species). Top. Bot. 148. Syme, E. B. iii. 203, t. 461. Fl. Oxf. 109.

? **Error or alien.** In *Mavor's Agr. Berks* of 1809 the Burnet Rose, *R. spinosissima*, is recorded from 'Heaths, &c.' on the authority of Mr. Bicheno, but I have been unable to verify the statement, although I have frequently searched for it. On Greenham Common a plant occurs in a hedge, but this is obviously a garden escape, and is not the wild form. The record in *Mr. Britten's Contributions*, taken from the *Wellington Coll. Report*, is also an error. The wood near Blackwater Ford, where it was said to grow, does not yield it. The Rev. C. W. Penny tells me he has no doubt it was recorded in error for an escaped Sweet Briar.

The Burnet Rose is recorded for Surrey, Hants, and Oxfordshire, but it is undoubtedly native in the latter county.

ROSA, Linn. Sp. Pl. 491 (1753). *R. mollis*, Sm. E. B. t. 2459 (1812). *R. mollis*, Willd. Prod. Fl. Berl. 437 (1787), teste Indice Kewensi.

149. Syme, E. B. iii. 208, t. 466. Nyman, 232. Fl. Oxf. 104.

R. villosa, Mr. H. Boswell in *Phyt. n. s.* iv. 100, 1860.

On the edge of Bagley Wood. Tubney. Foxcombe Hill, *Boswell*.

Bot. Rec. Club for 1880, a plant which I sent as *R. mollis* was F. Arnold Lees as having 'the prickles of the fruit-bearing

Buckland. Near Besilsleigh. White Horse Hill, *Trimen*. Lid's Bank, Blewbury, *Lousley in Russell's Cat*.

2. **Ook.** Frilford. Tubney. Jenny Bunting's Parlour on the Boar's Hill. Cherbury Camp. Lowbury. Blewbury. Abundant and generally distributed on Chalk. On Wittenham Clumps. Cothill. Near Abingdon.
3. **Pang.** Streatley, *Pamplin*. Many pastures at Hampstead Norris, *Lousley, l. c.* Abundant on the Chalk in this district as on the Streatley and Compton Downs.
4. **Kenet.** Greenham Park, *Weaver*. Wickham, *Mrs. Batson*. Abundant on the Chalk throughout the district.
5. **Loddon.** Wellington Coll., *Penny*. Common about Park Place, *Stanton*. Thames meadows at Maidenhead, Bray, Cookham, Hurley, &c. Wargrave. Windsor. Bracknell.

Var. *VIRESCENS*, Spach, l. c., with fruit obscurely reticulate and the leaves green and glabrous, appears to be our prevailing form. The var. *glaucum*, Spach, l. c., has the leaves glaucous on the upper surface and the fruit strongly reticulate, but I have not observed it in the county.

P. Sanguisorba is a characteristic plant of our limestone and chalk pastures, and, preferring sunny exposures, it is found in all the bordering counties.

***P. polygamum**, Waldst. et Kit. Pl. Rar. Hung. ii. 217, t. 198 (1805).

P. muricatum, Spach. Ann. Sc. Nat. 3^{me} Ser. v. (1846) 36.

Comp. Cyb. Br. 166. Syme, E. B. iii. 134-5, t. 420. Nyman, 240. Fl. Oxf. 112.

Colonist. Agrestal. Chalk fields, railway-banks, &c. Local, common. P. June-August.

First record. *P. muricatum*, Dr. J. T. B. Syme, E. B. ed. 3, iii. 135, 1876.

2. **Ook.** Besilsleigh, *Bolton King*, 1880. Lowbury, *Fl. Oxf.* Ferry Hinksey, *H. Baker*. Radley. Didcot. Blewburton Hill. Upton.
3. **Pang.** Frequent in Sainfoin fields, Langley, Hampstead Norris, *W. M. Rogers*. Streatley, *Fl. Oxf.* Basildon. Hermitage. Sulham. Tilehurst. Frilsham. Compton.
4. **Kenet.** Among Sainfoin (near Hungerford), *Reeks*. Near the Kenet's mouth by the railway, *Tufnail*. Between Beedon and E. Ilsley, *W. M. Rogers*. West Ilsley. Newbury. Padworth.
5. **Loddon.** In fields near Hurley. Near Cookham Dean.

Two varieties, first described as species by M. Jordan in *Obs. Pl. Crit.* vii. 22 (1849), are found. Var. *STENOLOPHUM*, at Blewbury, see the *Rep. Bot. Exch. Club*, 1888; and the var. *PLATYLOPHUM*, near Didcot, Reading, &c.

A sport, in which the inflorescence consisted of a considerable

number of few-flowered spikes, was found growing with the ordinary form at Bradfield in 1894.

P. polygamum is found in Hants, Wilts, Surrey, Bucks (near Marlow), and Oxfordshire.

P. officinale, A. Gray, in Proc. Amer. Acad. vii. (1868) 340. *Great Burnet*.

P. sylvestris, Gerard, 889. *Sanguisorba officinalis*, Linn. Sp. Pl. 116, a (1753).

Top. Bot. 154. Syme, E. B. iii. 132, t. 421. Nyman, 239. Fl. Oxf. 111.

Native. Pratal. Damp meadows. Locally common. P. May–August.

First record. Burnet. It grows in all our Oxford meadows, MS. in Lyte's Herball, 1660. *Sanguisorba officinalis*, Mr. Bicheno in Mavor's Agr. Berks, 1809.

1. **Isis**. Cumnor meadows, abundant, *Baxt. Phaen. Bot.* n. 269. In the Wytham meadows. Buscot. Near Appleton.

2. **Ock**. In all the pastures about Blewbury, *Lousley*, in *Russell's Cat.* Sandford in Thames meadows, *Dyer. Streatley, Pamplin.* Radley. Abingdon.

3. **Pang**. In all the pastures about Hampstead Norris, *Lousley*, l. c. (not seen by me). Near Tilehurst.

4. **Kennet**. Ditches about Greenham Mill, *Bicheno*, l. c. Theale. Padworth. Benham. Thatcham. Southcote. Kintbury.

5. **Loddon**. Sonning, *Rudge* (where it is still abundant). Twyford. Near Sandhurst and Wellington College.

P. officinale occurs in all the bordering counties.

ROSA, Linn. Gen. n. 556 (Tournefort, Inst. t. 408).

R. SPINOSISSIMA, Linn. Sp. Pl. 491 (1753), var. *PIMPINELLIFOLIA* (Linn. Syst. ed. 10, 1062 (1759), as a species). Top. Bot. 148. Syme, E. B. iii. 203, t. 461. Fl. Oxf. 109.

? Error or alien. In Mavor's *Agr. Berks* of 1809 the Burnet Rose, *R. spinosissima*, is recorded from 'Heaths, &c.' on the authority of Mr. Bicheno, but I have been unable to verify the statement, although I have frequently searched for it. On Greenham Common a plant occurs in a hedge, but this is obviously a garden escape, and is not the wild form. The record in Mr. Britten's *Contributions*, taken from the *Wellington Coll. Report*, is also an error. The wood near Blackwater Ford, where it was said to grow, does not yield it. The Rev. C. W. Penny tells me he has no doubt it was recorded in error for an escaped Sweet Briar.

The Burnet Rose is recorded for Surrey, Hants, and Oxfordshire, but it is doubtfully native in the latter county.

[**R. VILLOSA**, Linn. Sp. Pl. 491 (1753). *R. mollis*, Sm. E. B. t. 2459 (1812). *R. molliissima*, Willd. Prod. Fl. Berl. 437 (1787), teste Indice Kewensi.

Top. Bot. 149. Syme, E. B. iii. 208, t. 466. Nyman, 232. Fl. Oxf. 104.

First record. *R. villosa*, Mr. H. Boswell in *Phyt. n. s.* iv. 100, 1860.

2. **Ock**. On the edge of Bagley Wood. Tubney. Foxcombe Hill, *Boswell*.

In the *Rep. Bot. Rec. Club* for 1880, a plant which I sent as *R. mollis* was reported on by Dr. F. Arnold Lees as having 'the prickles of the fruit-bearing

branch (that alone sent) suspiciously stout and curved, but in other respects it seems typical.' The same form had been submitted to Mr. J. G. Baker, who pronounced it to be *R. mollis*.

I believe none of the above localities yield the true *R. villosa*, which I have not seen in the county. My plants are placed by M. Crépin under *R. tomentosa*, of which Mr. E. J. Baker has described the Boar's Hill plant as a variety under the name of *pseudo-mollis* in Journ. Bot. (1892) 341.

R. villosa is reported from all the bordering counties except Bucks, but my Gloucestershire plant is probably only *R. tomentosa*, var. *pseudo-mollis*.]

R. tomentosa, Smith, Fl. Brit. ii. 539 (1800), Eng. Bot. t. 990.

Top. Bot. 150. Syme, E. B. iii. 208, t. 467. Nyman, 232. Fl. Oxf. 105. Native. Sylvestral. Hedges, thickets, and woods. Local and not very common, although widely distributed. Shrub. June-July.

First recorded in Mr. Baxter's MSS. 1820.

1. **Isis.** Near Besilsleigh. Dean Court, Boswell (sub nom. *R. mollis*). Appleton. Cumnor.
2. **Ock.** Copse between Childswell Farm and Cumnor Hurst, Baxter. Tubney. Cothill. Bagley Wood. Foxcombe Hill, Fl. Oxf. (as *R. mollis*). Bagley Wood, Fl. Oxf. Jenny Bunting's Parlour. Pusey. Wittenham. Lowbury. Near Shippon.
3. **Pang.** Tilehurst, Tufnail. Aldworth. Langley. Compton. Streatley. Basildon. Ashampstead. Ashridge Wood. Moultsford.
4. **Kenet.** Newbury Wash Common. Riever Wood. Snelsmore Common, and in the wood on the south-western side. Padworth. Hodcott.
5. **Loddon.** Bearwood. Waltham. Strathfieldsaye (but in Berkshire). Stubbing's Heath. Near Hurst.

A large number of varieties of *R. tomentosa* occur. They include var. **SHERARDI** (Davies, Welsh Botan. 49 (1813), as a species). *R. subglobosa*, Sm. Eng. Fl. ii. 384 (1824). Catmore. Langley, W. M. Rogers. Tubney. Near Wittenham.

Var. **SCABRIUSCULA** (Winch, ex Sm. E. B. t. 1896), Baker, in Linn. Soc. Journ. xii. (1869) 217. Riever Wood. Snelsmore. Ashampstead. Boar's Hill.

Var. **SYLVESTRIS** (Lindl. Syn. 101 (1829), as a species), J. Woods, in Linn. Soc. Trans. (1817) 202. Compton, roadside hedge, Mr. F. A. Rogers. Boar's Hill, Sister Jane Frances. Tubney. Aldworth. Ashridge. Hurst.

R. tomentosa, Woods (sic), var. *pseudo-mollis*, E. G. Baker, in Journ. Bot. (1892) 341. *R. villosa*, H. Bosw. not Linn. *R. mollis*, Druce, Fl. Oxf. et auct. var., not of Smith.

This plant occurs in several localities on Boar's Hill, at Cothill, near Tubney, and Besilsleigh and Bagley Wood. I have seen its fruit quite ripe on the 1st of September. See Rep. of Bot. Exch. Club, 370, 1892, and 447, 1894.

R. tomentosa occurs in all the bordering counties.

R. rubiginosa, Linn. Mant. ii. 564 (1771). *Sweet Briar*.

R. Eglanteria, Huds. Fl. Angl. 191 (1762), and Miller, Gard. Dict. ed. 8 (1768), and probably of Linn. Sp. Pl. 491 (1753).

Top. Bot. 151. Syme, E. B. iii. 210, t. 468. Nyman, 233. Fl. Oxf. 105. Native. Septal and sylvestral. Hedges and woody places, not common, but widely scattered through the county. Shrub. June-July.

First record. *R. rubiginosa*, *Mavor's Agr. Berks*, 1809.

1. **Isis.** Cumnor, *Britt. Contr.* Carswell, *Miss M. Niven*. Wytham.
2. **Ock.** Bagley, *Boswell*. Cothill. Boar's Hill. Blewburton. Steven-ton. Sandford. Besilsleigh. Blewbury. Lockinge, planted.
3. **Pang.** In the hedges about Hampstead Norris, *Lousley*, in *Russell's Cat.* Streatley, *Pamplin*. Sulham, *Tufnail*. Tilehurst. Hawkridge Common. Unwell Wood. Ashampstead. Pangbourn. Frilsham. Ashridge Wood. A curious form occurs near Hermitage.
4. **Kennet.** Roadside from Newbury to Oxford, near Snelsgrove, *Bicheno*. West Woodhay very common, *Reeks*, in *Britt. Contr.* Mortimer, *Tufnail*. Beedon, Chieveley, and Snelsmore, *W. M. Rogers*. Snelsmore. Padworth. Newbury Wash Common. Greenham Common. Near Lambourn. Beenham.
5. **Loddon.** Park Place, *Stanton*. Stubbing's Heath. Ashley Hill. Maidenhead. Wargrave. Loddon Bridge. Windsor Park. Bisham Wood. Finchampstead.

Many variations are found in Berkshire.

R. rubiginosa occurs in all the bordering counties.

R. micrantha, Sm. E. B. t. 2490 (1812).

Top. Bot. 151. Syme, E. B. iii. 211, t. 469. Nyman, 233. Fl. Oxf. 106. Native. Septal, &c. Hedges, bushy places. Thinly scattered through the county. Shrub. May-July.

First record. Bagley Wood, *Mr. Baxter*, in *Herb. Oxf.* 1824. Published by Mr. H. Boswell, in *Phyt. n. s.* iv. 160, 1860.

1. **Isis.** Near Faringdon. Wytham. Buscot. Coleshill. Cumnor, a curious form with large leaflets and large elliptic fruit.
2. **Ock.** Bagley, *Baxter*. Birch Copse, *Boswell*. Boar's Hill. Besilsleigh. Cumnor Hurst, a similar form to the Cumnor specimen.
3. **Pang.** Langley, two or three bushes in the same hedgerow as *subglobosa*, *W. M. Rogers*. Compton. Ashampstead. Pangbourn. Bradfield. Sulham. Bucklebury. Hampstead Norris. Frilsham. Hermitage.
4. **Kennet.** Newbury. Padworth. Mortimer. Theale. Hungerford. Lambourn. Woodhay.
5. **Loddon.** Maidenhead. Cookham. Windsor Forest. Wokingham. Swallowfield. Wargrave. Ascot.

R. micrantha, which has foliage often as odorous as that of *R. rubiginosa*, occurs in all the bordering counties.

R. agrestis, Savi, Fl. Pis. i. 475 (1798).

R. sepium, Thuill. Fl. Paris, ed. 2, 252 (1799).

Top. Bot. 150. Syme, E. B. iii. 212, t. 470. Nyman, 233. Fl. Oxf. 106. Native. Septal. Hedges. Very rare and local. Shrub. June–August. First found by the author, see *Rep. of the Bot. Exch. Club for 1887*, 179.

1. **Isis**. Wytham, as a single large bush in a hedge bordering one of the grassy rides near the summit of the hill. The plant is not quite identical with the Oxfordshire form, nor does either appear to be quite typical, although properly placed under this species in an aggregate sense.

Mr. H. N. Dixon tells me a plant labelled *R. sepium* is contained in Mrs. Cecil's herbarium from Snelsmore Common, but I have not seen it.

R. agrestis is recorded for Oxfordshire, Surrey, Hants, and Wilts.

R. obtusifolia, Desv. Journ. de Bot. ii. (1809) 317.

R. canina, var. *obtusifolia*, l.c. ii. (1813) 115. Nyman, 235, 233.

Native. Septal. Hedges and bushy places. Very local in the north, but more frequent in the south of the county. Shrub. May–July. First found near Windsor by the author in 1882.

1. **Isis**. Cumnor.
2. **Ook**. Frilford. Lockinge, rare.
3. **Pang**. Compton, *W. M. Rogers*. Tilehurst. Ashampstead. Oare.
4. **Kenet**. Beedon Wood border. Between Beedon and East Ilsley. Chieveley, *W. M. Rogers*. Bucklebury. Newbury. Greenham. Near Reading.
5. **Loddon**. Risely. Winkfield. Windsor Park. Hurst. Waltham. Stubbing's Heath. Haines Hill. Maidenhead. Loddon Bridge. Blackwater. Sandhurst.

Var. **TOMENTELLA** (Léman in Bull. Soc. Phil. Paris (1818) 94, as a species). *R. canina*, var. *tomentella*, Baker in Linn. Soc. Journ. xi. (1869) 231. Syme, E. B. iii. 217.

1. **Isis**. Near Godstow (? in Oxfordshire), Dyer in *Britt. Contr.* 1871. Wytham. Cumnor, Druce in *Rep. of Bot. Rec. Club*, 1881. Appleton. Shrivenham.
2. **Ook**. Boar's Hill. Cothill. Wittenham. Marcham. Lockinge. Blewbury. Upton. Bagley. South Hinksey.
3. **Pang**. Common about Beedon, *W. M. Rogers*. Pangbourn. Ashampstead. Tilehurst. Hampstead Norris. Yattendon. Bradfield. Aldworth. Streatley. Moulsoford.
4. **Kenet**. Common about Beedon, *W. M. Rogers*. Catmore. W. Ilsley. Lambourn. Inkpen. Kintbury. Greenham. Snelsmore. Bucklebury. Mortimer. Burghfield. Padworth. Near Reading. Hungerford, including a specimen which the Rev. W. M. Rogers was inclined to refer to *R. collina*.

5. Loddon. Risely. Early. Bearwood. Windsor. Maidenhead. Stubbing's Heath. Bisham. Hurst. Wokingham. Blackwater.

Var. *DECIPIENS* (Baker, l.c., as a var. of *R. canina*, and Dumortier in Bull. Soc. Bot. Belg. vi. (1867) 55, as a var. of *R. tomentella*).

2. Ock. Near South Hinksey.

R. obtusifolia is found in all the bordering counties; in Bucks, at Eton Wick, Brill, Marlow.

R. canina, Linn. Sp. Pl. 492 (1753). Dog Rose.

Top. Bot. 152. Syme, E. B. iii. 212, 472. Nyman, 234-5. Fl. Oxf. 106. Native. Septal. Hedges, thickets, &c. Generally distributed and frequent except on the peaty heaths of the south-west. Shrub. May-June.

First record. *R. canina*, Mavor's Agr. Berks, 1809. The specimen of *R. canina*, from Sonning, of Mr. S. Rudge in Herb. Brit. Mus. 1800 is immature without a barren branch; the prickles are very slightly curved, fruit and peduncles bristly, leaves densely downy on both sides; it is perhaps a form of *R. tomentosa*.

Var. *LUTETIANA* (Léman in Bull. Soc. Phil. Paris (1818) 93, as a species). Top. Bot. 152. Syme, E. B. iii. 226. E. B. t. 992. Fl. Oxf. 106.

This form is one of the commoner varieties of *R. canina*, being found plentifully in all the districts.

Var. *ANDEGAUVENSIS* (Batard, Fl. Maine-et-Loire, 189 (1809), as a species). Desp. Roset. Gall. 88 (1828). *R. canina*, var. *hispida*, Desv. Journ. de Bot. ii. (1813) 115. Syme, E. B. iii. 219.

1. Isis. Besilsleigh. Cumnor. 2. Ock. Tubney. 3. Pang. Langley Wood border, W. M. Rogers. 4. Kennet. Mortimer, Tufnail. Lambourn. Near Reading. Kintbury. Newbury. 5. Loddon. Winkfield. Binfield. Wargrave.

Var. *SURCULOSA* (Woods, Linn. Soc. Trans. xii. (1817) 228, as a species). Hooker, Brit. Fl. 236 (1830).

1. Isis. Cumnor. Appleton. 2. Ock. Wootton. Bagley. Wittenham. 3. Pang. Yattendon. 5. Loddon. Near Strathfieldsaye.

This form is not very uncommon; it is found in old hedges, and may probably be a luxuriant form of *Lutetiana* or *dumalis*, under which group M. Crépin has placed all my specimens named by Mr. J. G. Baker, the Rev. W. M. Rogers, &c., as var. *surculosa*.

Var. *SPHERICA* (Gren. in Schultz, Arch. Fl. Fr. et Allem. (1855) 333, as a species).

1. Isis. Wytham. Near Eynsham. 2. Ock. Near Frilford. Near Bagley. Wootton. 5. Loddon. Near Wellington College.

M. Crépin refers all my British specimens of *R. spherica* to the *Lutetiana* group.

Var. *SENTICOSA* (Achar. in Kongl. Vetenskaps Akad. Handl. Stockh.

(1813) 91, as a species), Godet in Fl. du Jura, i. 215 (1852). *R. canina*, var. *ramosissima*, Rau, Enum. Rosar. Wirecb. 74 (1816).

1. **Isis.** Wytham. Appleton.
2. **Ock.** Wootton, with a form having slightly biserrate leaves, 1882.
3. **Pang.** Compton, F. A. Rogers.
4. **Kennet.** Peasemore, W. M. Rogers. Near Newbury.
5. **Loddon.** Long Moor. Blackwater.

Specimens of the above in my collection, named *senticososa* by our British experts, are placed in the *Lutetiana* group by M. Crépin.

R. canina is found in all the bordering counties.

R. sarmentacea, Woods, in Linn. Soc. Trans. xii. (1817) 213.

R. canina, var. *glandulosa*, Rau, Enum. Rosar. Wirecb. 75 (1816).

Var. *dumalis*, Dumort. in Bull. Soc. Bot. Belg. vi. (1867) 58.

R. dumalis, Bechst. Forstbot. ed. 5, 582 (1843).

Syme, E. B. iii. 225. E. B. Suppl. t. 2595. Fl. Oxf. 107.

Native. Septal. Hedges. Our commonest hedge-rose, after *R. canina*, var. *Lutetiana*, belongs to *R. sarmentacea* (the group *dumalis* of M. Crépin); it occurs plentifully in every district. Shrub. May-June.

First record. Godstow, Mr. W. T. Dyer in *Britt. Contr.* 1871, and from Bagley Wood by the author in *Rep. of Bot. Rec. Club* for 1881. A very pretty form, which is more glandular than the type, occurs on the east side of Boar's Hill.

In the group *dumalis* M. Crépin has placed my specimens named *surculosa*, *vinacea*, and *biserrata* by our British experts.

Var. **VINACEA** (Baker in *Naturalist* (1864) 101, as a species).

Near Cumnor and Wootton, and probably elsewhere.

Var. **BISERRATA** (Merat, Fl. Paris, ed. 1, 190 (1812), as a species).

Near Cumnor, Appleton, Sunningwell, &c., but is scarcely distinct from the preceding.

Half of our roses belong to the *Lutetiana*, *urbica*, and *sarmentacea* forms. Next to these *R. arvensis* is our commonest form.

Var. **CAESIA** (Smith in E. B. t. 2367 (1811) as a species). *R. canina*, var. *caesia*, Hook. Fl. Scot. 157 (1821). Syme, E. B. iii. 218, t. 473 bis.

'I think Mr. Baker so named a rose I brought from Wokingham, but the memorandum is temporarily mislaid,' Mr. H. C. Watson in *Britt. Contr.* 1871.

M. Crépin does not know our *Rosa caesia*, which is placed as a form of *R. canina*, var. *arvensis*, in Lond. Cat. ed. 9, 18.

Var. **PRUNOSA** (Baker in *Naturalist*, i. (1864) 96, as a species). *R. canina*, var. *pruinosa*, Baker in Linn. Soc. Journ. xi. (1869) 230. Syme, E. B. iii. 223.

2. **Ock.** Near Abingdon.

Var. **DÉSÉGLISEI** (Boreau, Fl. du Centre Fr. ii. 224 (1857), as a species).

5. **Loddon.** Near Winkfield. (Named for me by M. Crépin.)

R. sarmentacea is recorded for all the bordering counties.

R. dumetorum, Thuill. Fl. Paris, ed. 2, 250 (1799), (not of Sm. E. B. t. 2579). *R. canina*, var. *dumetorum*, Desv. Journ. de Bot. ii. (1813) 115. Syme, E. B. iii. 223. Nyman, 235. Fl. Oxf. 108.

Native. Septal. Hedges. Not uncommon and widely distributed. Shrub. May-June.

First found in Berkshire by the author in 1880.

1. **Isis.** Cumnor. Wytham.
2. **Ock.** Wootton. Hinksey. Radley. Wittenham. Lockinge. Boar's Hill. Frilford, &c.
3. **Pang.** Common about Beedon, *W. M. Rogers*. Streatley. Hampstead Norris.
4. **Kennet.** Common about Beedon, *W. M. Rogers*. Lambourn. Thatcham. Hungerford.
5. **Loddon.** Stubbing's Heath. Maidenhead. Risely. Swallowfield. Windsor Park. Wargrave. Bisham, &c.

R. dumetorum occurs in all the bordering counties. I have seen it in Bucks, near Brill and Stoke Poges; in Gloucestershire near Kingham.

Var. **URBICA** (Leman in Bull. Soc. Phil. Paris (1818) 93, as a species). *R. Forsteri*, Sm. Engl. Fl. ii. 392. *R. canina*, var. *urbica*, Baker, in Linn. Soc. Journ. xi. (1869) 228. Syme, E. B. iii. 225, t. 474.

1. **Isis.** Wytham. Shrivenham. Faringdon.
2. **Ock.** Hinksey, *Dyer in Britt. Contr.* 1871. Boar's Hill, the author in *Rep. of Bot. Rec. Club*, 1880. Bagley. Wittenham. Tubney. Radley. Frilford.
3. **Pang.** Common about Beedon, *W. M. Rogers*. Moulsoford. Bradfield. Compton.
4. **Kennet.** Common about Beedon, *W. M. Rogers*. Kintbury. Midgham. Mortimer.
5. **Loddon.** Twyford. Windsor. Wokingham. Blackwater, &c.

Var. **PLATYPHYLLA** (Rau, Enum. Rosar. Wirceb. 82, 1816, as a species). Syme, E. B. iii. 224. Fl. Oxf. 107.

2. **Ock.** Near Wootton and Cumnor Hurst.

The specimen of *R. platyphylla*, Rau, from Compton, collected by Mr. F. A. Rogers, is referred to *tomentella* by M. Crépin with some doubt.

Var. **ARVATICA** (Puget, ex Baker in Naturalist, i. (1864) 101, as a species). *R. canina*, var. *arvatica*, Baker in Linn. Soc. Journ. xi. (1869) 229. Syme, E. B. iii. 217. Nyman, 233. Fl. Oxf. 107.

1. **Isis.** Wytham. Cumnor.
2. **Ock.** Marcham, *Fl. Oxf.* Wootton. Sunningwell. Radley.
3. **Pang.** Common at Beedon, *W. M. Rogers*. Ashridge. Ashampstead. Streatley.
4. **Kennet.** Common at Beedon, *W. M. Rogers*. W. Ilsley. Chieveley. Donnington. Burghfield. Padworth. Aldermaston. Near Silchester.

5. **Loddon.** Risely. Finchampstead. Arborfield. Waltham. Maidenhead.

M. Crépin says that our British *Rosa arvensis* as represented in Herbaria, is a 'mélange de plusieurs espèces.'

Var. *FRONDOSA*, mihi. *R. canina*, var. *frondosa*, Baker, l. c. *R. obtusifolia*, var. *frondosa*, Lond. Cat. ed. 9, 1895.

2. **Ock.** Near Wootton. 3. **Pang.** East Ilsley, Compton, *W. M. Rogers*. Hampstead Norris. 4. **Kennet.** Catmore, *W. M. Rogers*. West Ilsley. Lambourn.

M. Crépin has placed almost all my specimens, named *frondosa*, under the group of *dumetorum*. He does not consider, I believe, that *frondosa* of Baker is identical with *frondosa* of Steven.

R. dumetorum is found in all the bordering counties.

R. verticillacantha, Mérat, Fl. Par. 190 (1812).

R. canina, var. *verticillacantha*, Auct. Angl., not of Mérat according to Déséglise. Syme, E. B. iii. 219. Fl. Oxf. 108.

Native. Septal. Hedges. Local, but scattered through all the districts. Shrub. May-June.

First recorded for Berkshire by the author in *Rep. of Bot. Rec. Club*, 1881.

1. **Isis.** Cumnor. 2. **Ock.** Long Wittenham, the author, see *Rep. Bot. Rec. Club*, 1881. Wootton. 3. **Pang.** Near Basildon. Bradfield. 4. **Kennet.** Mortimer, *Tufnail*. One bush at Peasemore (*Kosinciana*), *W. M. Rogers*. Theale. 5. **Loddon.** Winkfield. Stubbing's Heath.

Var. *ASPERNATA* (Déséglise in Journ. Bot. (1874) 171, as a species).

3. **Pang.** Near Streatley. 5. **Loddon.** Near Winkfield.

Var. *LATEBROSA* (Déséglise in Journ. Bot. (1874) 170, as a species).

2. **Ock.** Near Marcham.

Roses which belong to the section with bristly peduncles and a more prominent styler column have been recorded as *R. Kosinciana*, Besser, and *R. collina*, Jacq., neither of which is now considered to be British. Our plants belong to the group *verticillacantha*, which is represented in all the bordering counties.

R. glauca, Vill. ex Lois. in Desv. Journ. de Bot. ii. (1809) 336.

R. Reuteri, Godet in Reuter, Cat. Pl. Genev. (1861) 68. *R. canina*, var. *glauca*, Desv. l. c. (1813) 116. *R. canina*, var. *Reuteri*, Baker in Linn. Soc. Journ. xi. (1869) 233. Nyman, 236.

Native. Septal. Hedges. Local and rather rare. Shrub. May-July. First recorded by the author in *Rep. of Bot. Rec. Club*, 1881.

1. **Isis.** Near Appleton.
2. **Ock.** In the hedge by Tubney Wood, see *Rep. of Bot. Rec. Club*, sub nom. *R. Reuteri*, 1881; also a form with pubescent petioles at Tubney.

4. Kennet. Catmore, the only subcristate form seen, *W. M. Rogers*, 1886.
5. Loddon. Waltham. Stubbing's Heath. Near Ashley Hill.
 Var. *CRASSIFOLIA* (Wallm. in Liljebl. Utkast. Svensk Flora, 268 (1816).
R. coriifolia (Fries, Nov. Fl. Suec. ed. 1, 33, 1814). Syme, E. B. 221,
 472. Fl. Oxf. 109.
2. Ock. Near Tubney. 5. Loddon. Waltham.
 Var. *WATSONI* (Baker, in Naturalist, i. (1864) 98, as a species'.
 Syme, E. B. iii. 221. Fl. Oxf. 109.
1. Isis. Near Cumnor.
 Var. *SUBCRISTATA* (Baker, l. c. 97, as a species).
 Syme, E. B. iii. 222. Fl. Oxf. 109.
1. Isis. Near Appleton.

R. glauca is found in Bucks, near Brill, in Oxfordshire and Surrey. The Subcristate group is poorly represented by individuals in Berkshire—probably not one in five thousand.

The usual custom of grouping under *R. canina* all the allied varieties of the Dog Rose is here departed from. For some years past our method of studying the variations of the Dog Rose has been based on a very artificial system. It is possible that by separating the unwieldy species of *R. canina*, Linn., into groups, we may obtain better results; at any rate, we are brought more into accord with the system adopted by M. Crépin; but it must be borne in mind that finality is by no means stated to have been here attained, nor is absolute specific distinction for the groups adopted claimed. It may be urged with much force that some of the forms grouped under one or the other head may differ more from one of the members of its own group than it does from a member of another. This much may be said, that M. Crépin has kindly examined my specimens, which had previously been named by our best British experts, and the arrangement is based upon the results of his examination, although I do not know whether he agrees with the nomenclature.

R. stylosa, Desv. Journ. de Bot. ii. (1809) 317.

Top. Bot. 152. Syme, E. B. iii. 230, t. 475. Nyman, 231. Fl. Oxf. 104.
 Native. Septal. Hedges and wood borders. Local. Rare in the north,
 and probably absent from a large portion of the central chalk
 downs, not unfrequent on the London Clay in the south of the
 county. Shrub. May-June.

First record (for the aggregate species), *R. systyla*, Bast. At Donnington
 Castle, Mr. Bicheno in *Linn. Soc. Trans.* 1818, in *Smith's Eng. Fl.* ii.
 396, 1824.

Probably these refer to the variety *systyla*, rather than to true *stylosa*.

5. Loddon. A plant very near to true *R. stylosa* was found near
 Maidenhead.

Var. *SYSTYLA* (Batard, Fl. Maine-et-Loire Suppl. 31, as a species),
 Baker in *Linn. Soc. l. c. p.* 239.

2. Ock. In Bagley Wood, *Sister Jane Frances*.

4. **Kennet.** Donnington Castle, *Bicheno*. Near Kintbury. Hampstead Marshall.
5. **Loddon.** Winkfield. Near Whistley Mill. Near Loddon Bridge. Near Hurst. Wargrave. Knowl Hill. Littlewick Green. Between Hurst and Ashridge Wood. Hurst Green. Waltham. Near Ruscombe. Very fine specimens in a hedge near Maidenhead. Near Blackwater and Sandhurst.

Aggregate *R. stylosa* occurs in Bucks (near Brill, near Chalfont and Stoke Poges), in Hants (near Highclere, &c.), Surrey, Wilts, and Oxfordshire.

R. arvensis, Huds. Fl. Angl. 192 (1762). *White-flowered Dog Rose*.

R. canina humilior fructu rotundiore, Plot, Nat. Hist. Ox. 1677.

Top. Bot. 153. Syme, E. B. iii. 231, t. 476. Nyman, 231. Fl. Oxf. 103. Native. Septal. Hedges and woods. Common and widely distributed, but more frequent on stiff soils. The fruit sometimes does not ripen until the following year. Occurs in all the districts. Shrub. May-July.

First record. Sonning, *Mr. S. Rudge*, 1800, and Berkshire, *Mr. J. Woods*, 1824, in *Herb. Brit. Mus.* *R. arvensis*, Dr. Noehden, *Mavor's Agr. Berks*, 1809.

Var. **DIBRACTEATA** (Batard in DC., Fl. Fr. v. 537 (1815), as a species, not of Thory. Var. **BIBRACTEATA**, Redoute & Thory, *Les Roses*, i. 90 (1817).

1. **Isis.** Wytham. Appleton. 2. **Ock.** Wittenham. Radley. Wootton. 3. **Pang.** Hampstead Norris, *W. M. Rogers*. Bradfield. Tilehurst. Streatley. Oare. 4. **Kennet.** Beedon, *W. M. Rogers*. W. Ilsley. Kintbury. Mortimer. Hampstead Marshall. 5. **Loddon.** Near Maidenhead. Winkfield. Risely. Finchampstead.

M. Crépin does not believe that we have any true var. *dibracteata* in Britain.

Var. **GALLICOIDES**, Crépin in Bot. Exch. Club Rep. (1887) 181.

R. stylosa, var. *gallicoides*, Baker in Linn. Soc. xi. (1869) 240.

1. **Isis.** Near Wytham. Appleton. 2. **Ock.** Near Marcham. 5. **Loddon.** Near Loddon Bridge.

Obs. A pink-flowered form of *R. arvensis* was found near Early, and near Woodhay. By the Emborne Stream near Greenham Common and near Sandleford. *R. arvensis* often occurs with persistent and erect sepals (? var. *cristata*), but M. Crépin considers it to be rather an accidental condition than a true variety. I have, however, noticed it for four consecutive years in these localities. A similar form is referred to in the *Flora of Herefordshire*, 122.

R. arvensis occurs in all the bordering counties.

PYRUS, Linn. Gen. n. 550 (Tournefort, Inst. t. 404).

P. torminalis, Ehrh. Beitr. vi. 92 (1791). *Wild Service Tree*, Sorb.

Crataegus torminalis, Linn. Sp. Pl. 476. *Sorbus torminalis*, Crantz, Stirp. Austr. ed. i, ii. 45, and Gerard.

Top. Bot. 158. Syme, E. B. iii. 241, t. 481. Nyman, 242. Fl. Oxf. 114. Native. Sylvestral. Woods. Very local and rare. Tree. April-May. First record. Bagley, Mr. Baxter in *Walker's Fl. Oxfordshire*, 133, 1833.

2. **Ock**. In Bagley Wood, nearly opposite the village of Kennington, 1824, *Bart. Phaen. Bot.* 111, 1835, and in *Walk. Fl.* (now lost, I am afraid).

3. **Pang**. In Beech Wood and in the row by Thistle field—a curious fruit, *Lousley in Russell's Cat.* Sulham Wood, *Tufnail*.

5. **Loddon**. Not unfrequent in Beech woods, Park Place. Roe Hill Wood, *Stanton*.

Pyrus torminalis occurs in all the bordering counties except E. Gloucestershire, where its occurrence is doubtful.

P. Aria, Ehrh. Beitr. iv. 20 (1789). *White Beam Tree*.

Crataegus Aria, Linn. Sp. Pl. 475. *Aria Theophrasti*, Gerard, 1146. *Sorbus Aria*, Crantz, l. c. 46.

Top. Bot. 159. Syme, E. B. iii. 243, t. 482. Nyman, 242. Fl. Oxf. 113. Native. Sylvestral. Woods, hedges, &c. Absent from a large area of the northern part of the county and from the heaths of the south-west, but common on the Chalk in the central and south-eastern parts of the county. Tree. May-June.

First record. Near Maidenhead Thicket, *Mr. J. Woods in Winch MSS.*, 1810. Published as *Pyrus Aria* by Mr. Baxter in *Walk. Fl.* 137, 1833.

1. **Isis**. Idstone.

2. **Ock**. Tubney, *Walker*. Bagley Wood. Near Radley. Wittenham. Blewbury. Lockinge. Uffington. Letcombe.

3. **Pang**. Streatley, *Baxter*, l. c. Unwell Wood, *Boswell*. In Park Coppice rather plentiful. In Beech Wood and other woods, *Lousley*, in *Russell's Cat.* Langley. Westbrook and elsewhere, *W. M. Rogers*. Tilehurst, *Tufnail*. Basildon. Pangbourn. Compton. Ashampstead. Yattendon. Bradfield. Bucklebury. Sulham, &c.

4. **Kennet**. Between Beedon and East Ilsley, *W. M. Rogers*. Mortimer, sparingly, *Tufnail*. Lambourn. West Ilsley. Catmore. Chilton Foliat. Inkpen. Hungerford. Enborne. Greenham. Riever Wood, &c.

5. **Loddon**. Woods between Maidenhead Thicket and Great Marlow, *Woods*, see *New Bot. Guide*. Very abundant in the neighbourhood of Marlow, Bisham Wood, *Mill*. Common about Park Place,

Stanton. Cookham. Ashley Hill. Crazey Hill. Bowsey Hill. Wargrave. Sonning, &c.

The leaves vary considerably in the depth of serration; some flowering specimens, which I sent to Dr. Boswell Syme, were, he says, 'more deeply lobed than even specimens of so-called "*P. scandica*," but they are without doubt *P. Aria*.' They are an analogous form (f. *incisa*) to the variety *perincisa*, Borb. et Fer. of *P. torminalis*, which occurs in Wychwood Forest, Oxfordshire. Perhaps the specimen reported as *P. scandica* from Pangbourn by Prof. Babington may have been the cut-leaved form of *P. Aria*. See *Flora of Herefordshire*, 124.

P. Aria occurs in all the bordering counties.

[**P. ROTUNDIFOLIA**, Moench, Meth. 680 (1791), var. *DECIPIENS*, N. E. Br. in E. B. Suppl. ed. 3, 165.

P. scandica, Bab. Man. Brit. Bot. ed. 3, 111. Syme, E. B. iii. 245, t. 484.

Incog. 'Professor Babington mentions it from . . . Pangbourn. I have carefully searched the Berks locality, but could find nothing but *P. eu-Aria*,' Syme, E. B. iii. 246. Prof. Babington also records it from Silchester, but, according to Mr. F. Townsend, the locality is in Hampshire.

At present my search for the plant in Berkshire has been unsuccessful.]

[**P. PINNATIFIDA**, Ehrh. Beitr. vi. 93 (1791).

Sorbus hybrida, Linn. Sp. Pl. ed. 2, 684 (1762), occurs in Hampshire, probably as a planted tree.]

P. Aucuparia, Ehrh. Beitr. vi. 94 (1791). *Mountain Ash, Rowan.*

Sorbus Aucuparia, Linn. Sp. Pl. 477.

Top. Bot. 160. Syme, E. B. iii. 248, t. 486. Nyman, 241. Fl. Oxf. 113.

Native. Sylvestral. Woods. Local. Tree. May-June.

First record. *Sorbus aucuparia*, Service or Quicken Tree, Dr. Noehden.

Wood of considerable use, *Mavor's Agr. Berks*, 1809.

2. **Ock.** Copse between Childswell Farm and Wootton Heath, *Baxter in Walk. Fl. Wootton Heath, Baxter*, 1825, in *Herb. Oxf. Tubney, Walker*.

3. **Pang.** Unwell Wood; *Boswell*. Basildon, *Fl. Oxf.* Ashampstead. Hawkridge. Bucklebury. Hermitage. Yattendon. Bradfield. Sulham.

4. **Kennet.** Included in *Russell's Cat.* 1839. Mortimer, very abundant in all stages of growth, *Tufnail*. Wasing. Greenham. Aldermaston. Upton. Inkpen. Enborne. Burghfield. Wickham.

5. **Loddon.** Finchampstead Ridges, *Penny*. [Near Bagshot], *Watson*. Park Place. Rose Hill, *Stanton*. Ashley Hill. Wellington College. Sandhurst. Farley Hill. Windsor Park. Sunningdale. Ascot. Bracknell. Bearwood. Cookham. Maidenhead.

P. Aucuparia occurs in a more or less native condition in all the bordering counties.

P. Malus, Linn. Sp. Pl. 479 (1753). *Crab-tree, Wilding.*

Malus sylvestris, Gerard, 1276.

Top. Bot. 158. Syme, E. B. iii. 255, t. 489. Nyman, 240. Fl. Oxf. 112. Native. Septal. Woods, hedges, thickets. Common and generally distributed. Small tree. April-June.

First record. *P. malus*. Wood useful, *Dr. Mavor's Agr. Berks*, 1809.

With *Erinaeum pyrinum*, Pers., in Bagley Wood, *Baxt. Stirp. Crypt.*

Ox. n. 48, 1825. Ashridge Wood, *Mr. W. Hewett in Herb. Brit. Mus.* 1839.

Var. **MITIS**, Wallr. Sched. Crit. 215 (1822). Syme, E. B. iii. 256, t. 490, is found in all the districts, but not usually so frequent as the var. *acerba*. The Rev. W. M. Rogers reports it as being frequent about Beedon. I have seen it at Wytham, Cumnor, Tubney, Appleton, Buscot, Coleshill, Bagley, Wittenham, Lockinge, Letcombe, Bradfield, Sulham, Aldworth, Hungerford, Lambourn, Aldermaston, Windsor Park, Wargrave, Bracknell, Ascot, Winkfield, Early, Cookham, Maidenhead, Ruscombe, &c. There is a most picturesque avenue of what is probably this form at Welford.

Var. **ACERBA** (DC., Prod. ii. 635, as a species), *Malus acerba*, Mérat, Fl. Par. i. 187 = var. *acida*, Wallr. teste Syme, is the commoner plant. I have seen it in many localities in all the districts.

Pyrus Malus occurs in all the bordering counties.

***P. communis**, Linn. Sp. Pl. 479 (1753). *Wild Pear.*

P. sylvestris, Gerard, 1271. Comp. Cyb. Br. 167. Top. Bot. 158. Syme, E. B. iii. 251, t. 488. Nyman, 240. Fl. Oxf. 113.

Denizen. Septal. Hedges, &c. Local and rare. Tree. April-May.

First recorded by Mr. J. Lousley in *Russell's Cat.* 1839.

2. **Ock**. Denchworth, a casual, *Wail*. In the hedgerows of Upton Gardens, *Lousley in Russell's Catalogue*.

3. **Pang**. About Aldworth and Hampstead Norris. In Beech Wood, *Lousley*, l. c. Near Cold Ash Common, one tree in a field.

5. **Loddon**. One large tree, with rugged bark and somewhat thorny branches, in Park Place, between the Ivy Lodge and Boat House, *Stanton*. One tree near Old Windsor Lock, *Bolton King*. Near Holyport. It is found more or less naturalized in all the bordering counties.

***P. GERMANICA**, Hook. fil. Stud. Fl. 127 (1870). *The Wild Medlar.*

Mespilus germanica, Linn. Sp. Pl. 478. *M. sativa*, Ger. Em. 1453.

Cyb. Br. i. 364. Syme, E. B. iii. 235, t. 478. Nyman, 243. Fl. Oxf. 114.

Alien. Hedges. Very rare. Small tree. May-June.

First record. Sometimes in hedgerows, but not common. In a hedge by Purley. Mostly planted in orchards. In Mr. Lousley's Orchard, Hampstead Norris. Mr. J. Lousley in *Russell's Cat.* 1839.

The Medlar is recorded for the counties of Oxfordshire, Bucks, and Surrey.

CRATAEGUS, Linn. Gen. n. 547.

C. Oxyacantha, Linn. Sp. Pl. 477 (1753). *Hawthorn, Whitethorn, May.*

Oxyacanthus, Ger. Em. 1327. *Baxter*, t. 118.

Top. Bot. 157. Syme, E. B. iii. 236, t. 479. Nyman, 243. Fl. Oxf. 114,

Native. Septal, &c. Hedges, woods, thickets, parks, &c. Abundant and generally distributed. A small round-headed tree or hedge-row bush. April-June.

First record. *C. Oxyacantha*. The most common and the best fence, *Dr. Mavor's Agr. Berks*, 1809. 'Lady East says she has gathered to-day the *May* in flower near Purley, May 31, 1818.' *Corresp. of Sir James E. Smith*.

Var. *OXYACANTHOIDES* (Thuill. Fl. Par. ed. 2, 245, as a species), Syme, l. c., t. 479. This form occurs plentifully in all the districts; it has usually from two to three styles, the fruit with two or three stones, the peduncles and calyx normally glabrous, and the leaves less divided. It has been seen at Wytham, Boar's Hill, Tubney, Faringdon, Lockinge, Wittenham, Bagley, Moulsoford, Yattendon, Ashampstead, Bradfield, Newbury, Hungerford, Sulhampstead, Arborfield, Ruscomb, Waltham, Bray, Stubbing's Heath, Windsor, &c.

Var. *MONOGYNA* (Jacq. Fl. Austr. iii. 50, t. 292, 1775, as a species), Syme, l. c., t. 480, has only one style and a one-stoned fruit, while the peduncles and calyx tube are usually downy. This has been noticed at Wytham, Besilsleigh, Tubney, Bagley, Radley, Kennington, West Ilsley, Welford, Ashampstead, Pangbourn, Tilehurst, Hungerford, Calcot Park, Inkpen, Finchampstead, Swallowfield, Wargrave, Stubbing's Heath, Windsor, Cranbourn Park, Easthampstead, &c.

Var. *LACINIATA* (Wallr. Sched. Crit. sub *Mespilus*), not *C. laciniata*, Stev. in Bess. Enum. Pl. Volh. p. 38, appears to be made up of cut-leaved forms of the preceding varieties, but chiefly from *monogyna* forms. It has been noticed at Swallowfield by Mr. Tufnail, at Cumnor, Wytham, Steventon, Hungerford, Farley Hill, Maidenhead, &c.

The *f. rosea*, so often cultivated as the crimson thorn, occurred once as a sport at Uffington, where a bush of var. *C. monogyna* had a branch with rose-coloured flowers.

Mr. J. C. Melvill noticed a spineless form at Hurst in 1877. By a process of sorting we can arrange our thorns into groups, one characterized by a single style (*monogyna*), the other with two or more styles (*oxyacanthoides*), but this by no means scientifically meets the difficulty we have in describing the forms met with, for we find that the one-styled form may have the calyx tube either glabrous or hairy, and the leaves more or less cut, and the same statement holds true of the two-styled plant. Mr. H. Baker, assistant in the Oxford Herbarium, collected a considerable series from the neighbourhood of Oxford, which showed the great variability of the Hawthorn, but whether this is in consequence of the two extreme forms hybridizing I am not prepared to say. It must be borne in mind that fertile hybrids occur in this order. These forms differed not only in the manner alluded to, but also in leaf texture. The

difference in the size, shape, and colour of the haws in our hedgerows must have been noticed by botanists.

Var. *KYRTOSTYLA* (Fingerh. ex Schlecht. in *Linnaea*, iv. (1829) 372, as a species), another variety is included in our British lists, differentiated by the hairy peduncles and reflexed styles, which I have noticed in Hampstead Marshall Park and may not be unfrequent, but special attention has not been given to this form.

Writing of the Boar's Hill range, Matthew Arnold, in *Thyrsis*, says:—

'But many a dingle on the loved hill-side,

With thorns once studded, old, white-blossomed trees.'

Very handsome thorns are to be found in Windsor Park, Wytham Park, Ashampstead Common, Hampstead Marshall Park, &c.

East Ilsley stands on the site of the famous Nachededorne, which derives its name from a remarkable thorn-tree crowning the summit of a neighbouring hill. In 871, says Asser, the Danes were defeated by Alfred on the hill where it stood, and round which they had carelessly assembled.

It may be worth noting that in the dry spring of 1896, the Hawthorn, which in the valley of the Kennet was nearly over flower on May 31, was not in full flower (that is, a good proportion of unopened flowers were present) on the bushes which grow on Gibbet Hill at an elevation of about 900 feet.

C. Oxyacantha occurs in all the bordering counties.

Obs. In Withering's *Bot. Arr. of British Plants*, ed. 1, 292 (1776), the Glastonbury Thorn is said to grow about Reading in Berkshire; the record is repeated by Stokes in ed. 2, ii. 512 (1787) of the same work. This variety, as is well known, is interesting from the fact that a few blossoms are put forth about Christmas time.

SAXIFRAGACEAE, DC., Fl. Fr. iv. 358 (1805).

SAXIFRAGA, Linn. Gen. n. 494 (Tournefort, Inst. t. 129).

S. tridactylites, Linn. Sp. Pl. 404 (1753). *Rue-leaved Saxifrage*.

Top. Bot. 181. Syme, E. B. iv. 74, t. 552. Nyman, 274. Fl. Oxf. 129.

Native. Glareal. On old walls, and dry sandy ground. Widely distributed and locally common. Preferring sunny exposures.

A. March-June.

First record. *S. tridactylites*, Dr. Noehden, *Mavor's Agr. Berks*, 1809.

1. **Isis.** Cumnor. Wytham. Longworth. Faringdon. Colleshill. Buscot. Appleton.

2. **Ock.** Denchworth, Wait. Hinksey, Whitwell. Blewbury Hill, and on thatched houses in that vicinity, Lousley. Marcham, Walker. South Hinksey, Kennington, Tubney, Fl. Oxf. Cothill. Abingdon. Frilford. Appleford. Dideot. Lockinge. Letcombe. Pusey. Sutton Courtney. Sparsholt. Goosey. Shellingford. Hanney. In the camp of Uffington Castle about 840 feet.

3. **Pang.** Streatley, *Pamplin*. Pangbourn. Tidmarsh. Hampstead Norris. Compton. Bucklebury. Aldworth, &c.
4. **Kennet.** Greenham Mill, *Weaver*. Wasing. Brimpton. Welford. Kintbury. Shefford. Chilton Foliat. Lambourn. Padworth. Southcote, &c.
5. **Loddon.** Wall by the village of Hurley, *Mill*. Holme Park, Sonning, *Tufnail*. Windsor, *Everett*. Wellington College List. Cookham. Ruscombe. Wargrave. Hurst. Bracknell. Wokingham. Bray. Sonning. Arborfield. Barkham. Finchampstead.

A small form with entire leaves, growing in very dry places, is probably *S. minuta*, Pollin. Pl. Nov. i. 2, teste Koch, Syn. 276 = the var. *pusilla*, Brébisson, Flore de la Normandie, 124.

Saxifraga tridactylites occurs in all the bordering counties.

S. granulata, Linn. Sp. Pl. 403 (1753). *Meadow Saxifrage*.

Saxifraga alba, Ger. Em. 841 (1633).

Top. Bot. 180. Syme, E. B. iv. 77, t. 555. Nyman, 272. Fl. Oxf. 128. Native. Pascual. Meadows, chalk downs, railway-banks, &c. Locally common, especially on gravelly soil, and is a great ornament to some of our gravelly meadows and pastures. The flowers are fragrant. P. April-June.

First record. *White Saxifrage*, Dr. Noehden in *Mavor's Agr. Berks*, 1809.

1. **Isis.** Wytham, *Boswell* in *Fl. Oxf.* Downs near Wayland's Smithy.
2. **Ock.** Marcham, *Walker*. Uffington Castle, *Trimen*, 1866. Denchworth, *Wait*. Pusey. Powder Hill Copse. Common on the downs near the White Horse Hill (840 feet). Upton Downs.
3. **Pang.** Streatley, *Pamplin*. Compton Downs, *Boswell*. Bradfield. Between Hawkridge and Bucklebury very fine specimens 18 inches high were found, some of which were sent to the *Bot. Exch. Club* in 1894. Near Yattendon. Aldworth. Pangbourn. Hermitage. Tidmarsh.
4. **Kennet.** Sandleford Park, *Russell's Cat*. Near Newbury Workhouse, *Weaver*. Wickham, *Mrs. Batson*. Welford Park. Abundant near Aldermaston. Kintbury. Inkpen Common and Downs. Gibbet Hill. Little Common, Hungerford. Near Shaw. Near Ashbury, &c.
5. **Loddon.** Remenham, *Stanton*. Wellington College Brickyard, *Penny*. Sonning Meadows, *Tufnail*. Abundant about Early. Wokingham. Near Bisham. Near Cookham, &c.

S. granulata occurs in all the bordering counties.

CHRYOSPLENIUM, Linn. Gen. n. 493 (Tourn. Inst. t. 60).

C. oppositifolium, Linn. Sp. Pl. 398 (1753). *Golden Saxifrage*.

Saxifraga aurea, Ger. Em. 841.

Top. Bot. 183. Syme, E. B. iv. 84, t. 563. Nyman, 276. Baxt. t. 140. Fl. Oxf. 129.

Native. Uliginal. Shady ditches and wet places in woods. Very local. Absent from very considerable areas of the chalky and heathy districts. P. February–April.

First record. Forbury near Reading, *Herb. Brit. Mus.* 1841. Given without locality in *Britt. Contr.* 1871.

2. Ock. Bagley Wood, *Fox in Fl. Oxf.* !

3. Pang. In a small coppice, Tilehurst, *Tufnail in Fl. Oxf.* Damp coppice, Bucklebury Common, *Tufnail*. Near Cold Ash Common. Fence Wood.

4. Kennet. Forbury, *Herb. Brit. Mus.* Greenham Common, *Weaver*. Wickham, *Mrs. Batson*. Aldermaston.

5. Loddon. Gate near Beeches, Wellington College, *Penny*. Coleman's Moor. Woodley Green.

C. oppositifolium occurs in all the bordering counties.

[*C. ALTERNIFOLIUM*, Linn. Sp. Pl. 398 (1753).

Top. Bot. 183. Syme, E. B. iv. 85, t. 564. Nyman, 275. Fl. Oxf. 129.

The locality of Bagley Wood, given in my *Fl. Oxf.* by the Rev. E. Fox, is incorrect; he most probably confused the commoner *C. oppositifolium*, which grows there, with it. The locality of Cliveden Woods, cited correctly for Bucks in the *New Bot. Guide*, is said incorrectly by Mr. Britten, in his *Contributions*, to be in Berkshire.]

PARNASSIA, Linn. Gen. n. 345 (Tournefort, Inst. t. 246).

P. palustris, Linn. Sp. Pl. 273 (1753). *Grass of Parnassus*.

P. vulgaris et palustris, Inst. R. H. 246. Baxt. t. 70.

Top. Bot. 183. Syme, E. B. iv. 86, t. 565. Nyman, 82. Fl. Oxf. 44.

Native. Paludal. Marshy places and bogs. Local. P. August–October.

First record. *Gramen Parnassii hederaceum recentiorum*. In pratis et udis pascuis Angliae ad Oxoniam, *Lobel. Adv.* 263, 1570, and first as a British plant.

2. Ock. On the other side of Oxford in the pasture next unto Botley in the highway, *Parkinson, Theatrum Botanicum*, 429, 1640. In a bog between Tubney and Oakley House, in great abundance, Aug. 1833, *E. Jenner in Baxt. Phaen. Bot.* n. 70. Wootton, *Boswell*. Frilford, abundant. Cothill. Marcham. In a bog between Ferry Hinksey and Hen Wood. Near Shippon. On Abingdon Racecourse in a marshy spot, rather plentiful.

Parnassia occurs in Oxfordshire, Bucks, Gloucestershire, and in South Hants.

RIBES, Linn. Gen. n. 247 (*Grossularia*, Tournefort, Inst. t. 409).

R. Grossularia, Linn. Sp. Pl. 201 (1753). *Wild Gooseberry*.

Comp. Cyb. Br. 177. Syme, E. B. iv. 38, t. 518. Nyman, 266. Fl. Oxf. 127.

Denizen or native. Hedges, thickets, and woods; sparingly scattered through the county. Shrub. April-May.

First record. *R. grossularia*, Mr. Bicheno in *Mavor's Agr. Berks*, 1809. In Turville Wood, Compton, near Hampstead Norris, Mr. J. Lousley in *Russell's Cat.* 1839. Bisham Wood, Mr. G. G. Mill in *Phyl.* i. 987, 1843.

The type has the ripe fruit clothed with glandular hairs. I have seen it at Wytham, Buscot, Appleton, Marcham, Bagley Wood, Radley Wood, Tubney, Wittenham, Pusey, Unwell Wood, Oare, Basildon, Bradfield, Pangbourn, Ashampstead, Bucklebury, Greenham, Inkpen, Enborne, Kintbury, Park Place, Wargrave, Ruscombe, Sandhurst; and Mr. Tufnail reports it from Tilehurst, Shinfield, and Wokingham.

Var. *UVA-CRISPA* (Linn. l. c. as a species) = var. *pubescens*, Koch, Syn. Fl. Germ. 265, has the ripe fruit smooth, the leaves smaller, more pubescent and less shining than those of the preceding variety, than which it is less frequent. I have seen it at Idstone, Appleton, Cumnor, Kingston Bagpuze, Wittenham, Basildon, Yattendon, Hampstead Norris, Bucklebury, Sonning, Waltham, Maidenhead, Cookham, &c. A species collected by Mr. W. Hewett in 1840 is in *Herb. Brit. Mus.*

Var. *RECLINATUM* (Linn. l. c. as a species), is almost entirely glabrous, and is only of garden origin, as near Cookham, &c.

R. Grossularia occurs in all the bordering counties.

[***R. ALPINUM*, Linn. Sp. Pl. 200 (1753). Syme, E. B. iv. 40, t. 519. Fl. Oxf. 128. Alien. Naturalized near Whitechurch, Oxfordshire, and Gloucestershire.]

R. rubrum, Linn. Sp. Pl. 200 (1753), and Lobelius. *Red Currant*. Comp. Cyb. Br. 177. Syme, E. B. iv. 40, t. 520. Nyman, 266. Fl. Oxf. 128. Native. Sylvestral. Thickets, woods, borders of shady streams, on pollard willows, &c. Local. Shrub. April-May.

First record. Bagley Wood, *Baxt. Phaen. Bot.* 1840 (t. 345, dated 1839). Kintbury, Mr. W. Hewett, *Herb. Brit. Mus.* 1841.

1. *Isis*. Wytham. By the river Cole, near Strattonborough Castle. Shrivenham.
2. *Ock*. On pollard willows in Bagley Wood. In a hedge near Childswell Farm, *Baxt. Phaen. Bot.* l. c. In the heads of pollard willows about Blewbury, *Lousley in Russell's Cat.* By the Ock near Noah's Ark.
3. *Pang*. In hedgerows about Hampstead Norris, frequently, *Lousley, l. c.*
4. *Kennet*. Woods, West Woodhay. Haycroft. Kintbury, &c., *Reeks, in Britt. Contr.* Aldermaston. Hampstead Marshall.
5. *Loddon*. By the Loddon near Sandford Mill. Near Hurley.

Many of the above localities belong to the garden plant which Syme called sub-species *R. sativum*, the *R. rubrum*, var. *SATIVUM*, Reichb. Fl.

Germ. Excurs. 562; but the plant from the Cole side belongs, I believe, to the *R. rubrum*, var. *SYLVESTRE*, Reichb. l. c. It has smaller and more pubescent leaves, the rachis of the racemes is downy, and the flowers are tinged with dull purple.

R. rubrum occurs in all the bordering counties, but often only as a bird-sown plant.

R. nigrum, Linn. Sp. Pl. 201 (1753), and of Dodoens. *Black Currant*. Comb. Cyb. Br. 177. Syme, E. B. iv. 45, t. 523. Nyman, 266. Fl. Oxf. 128. Denizen or native. Hedges, stream-sides, and thickets. In moist shady situations, thoroughly naturalized, if not native. Local. Shrub. April-May.

First recorded by Mr. J. Lousley in *Russell's Cat. of 1839*.

1. **Isis.** Wytham. Shrivensham. By the Cole near Coleshill. Appleton. Lower Common.
2. **Ock.** Plentifully in South meadows, East Hagbourn, on the banks of the brook, *Lousley*, l. c. Brook-side near Blewbury at the wire mills and at Sheen Cross, Blewbury, *Hewett, in Herb. Brit. Mus.* 1839. Frilford.
3. **Pang.** Islets in the Thames near Tilehurst, *Tufnail*. Pangbourn. Basildon Wood. Frilsham. Tidmarsh. Bradfield.
4. **Kennet.** Hampstead Marshall. Aldermaston. Emborne side, near Greenham Common, abundant. Snelsmore.
5. **Loddon.** Blackwater river, *Penny*. Banks of the Thames near Henley, *Stanton*. Ascot. Side of the Loddon between Twyford and Loddon Bridge. Near Hurley.

R. nigrum occurs in a more or less naturalized condition in all the bordering counties.

The record in *Ray's Cat. Cant.* (1660) and *Merrett's Pinax* of '*Ribes fructo nigro*. By the riverside at Abbingdon' refers to a Cambridgeshire locality.

CRASSULACEAE, DC., Bull. Soc. Phil. (1801) 49 (1805).

Sedaceae, Neck. Act. Ac. Theod. Pal. ii. 487 (1770).

TILLAEAE, Linn. Gen. n. 163 (Mich. 20).

[**T. muscosa**, Linn. Sp. Pl. 129 (1753). Top. Bot. 175. Syme, E. B. iv. 47, t. 524. Nyman, 265. Fl. Oxf. 127.

Ambiguity or error. '*Tillaea muscosa*, Mossy red shanks, Mr. Bicheno. In the poor soils about Frilsham,' *Mavor's Agr. Berks*, 1809. I have never been able to meet with it, either there or on the heaths about Bracknell or Sandhurst, where one might expect it to occur.

Hants is the only bordering county for which I possess any record.]

COTYLEDON, Linn. Gen. n. 512 (Tournefort, Inst. t. 19).

C. Umbilicus, Linn. Sp. Pl. 429 (1753). *Navel Wort*.

Umbilicus Veneris, Gerard, 424 (1597). *U. pendulinus*, DC., Pl. Grass. t. 162. Top. Bot. 178. Syme, E. B. iv. 62, t. 539. Nyman, 258. Fl. Oxf. 124.

Denizen or native. Old walls in and about villages. Local and rare.
P. June–August.

First record. *Pennicuirt*. On all old walls about Oxford, *MS.* in *Lyte's Herball*, 1660. [William Cole, in *Adam in Eden*, records it for Oxford, and in a letter dated 1688, Mr. Thos. Lawson wrote to Ray mentioning it as an Oxford plant, see *Ray Corresp.* 223.] *Cotyledon Umbilicus* is distinctly given as a plant of Berkshire by Mr. Bicheno in *Mavor's Agr. Berks*, 1809.

1. *Isis*. Longworth. Wytham.

2. *Ock*. On stone walls about Abingdon, *Bicheno*. Abundant on old stone walls at South Hinksey, *Baxt. Phaen. Bot.* n. 279, and *MSS.* 1812. Ferry Hinksey, *Boswell*. Stone walls at Sutton [Courtney] and Culham, *Lousley in Russell's Cat.* 1839. On the walls of two or three villages near Abingdon, *Boswell*. Tubney, *Walker*. Marcham, *Fl. Oxf.* Wootton. Dry Sandford.

? 4. *Kennet*. Included by Mr. Flower in *Robertson's Env. of Reading* in 1843, but without locality.

C. Umbilicus is recorded for Surrey, Hants, Wilts, and Oxfordshire, but is extremely rare in the latter county, and is decreasing in Berks.

SEDUM, Linn. Gen. n. 513 (*Tournefort*, Inst. t. 140).

S. Telephium, Linn. Sp. Pl. 430 (1753). *Orpine*, *Live Long*.

Telephium vulgare, C. B. Pin. 287. *Sedum vulgare*, Link. Enum. Hort. Berol., 437.

Top. Bot. 175. Syme, E. B. iv. 49, t. 526. Nyman, 260. *Fl. Oxf.* 125. Native. Dry woods, hedge-banks, chiefly on sandy soil. Local and not very common. P. June–September.

First record. Bagley Wood, *Mr. Baxter MSS.* about 1820; also in *Walker's Flora*, 1833.

1. *Isis*. Buckland, *Boswell in Fl. Oxf.* Wytham, *Mrs. Westwood*. Abundant in Tubney Wood.

2. *Ock*. Bagley Wood, *Baxter*. Tubney Wood, *Walker*.

3. *Pang*. Grows plentifully in Ashridge Wood and a few other places, a rare plant, *Lousley in Russell's Cat.* In the lane leading from Marlstone to Bucklebury, *Bunny in Russell's Cat.* Hermitage, *Palmer*. Tilehurst, *Tufnail*. Near Curridge. Near Bradfield. Near Bucklebury Common.

4. *Kennet*. Opposite Crookham End House, *Bunny*, l. c. West Woodhay. Inkpen. Kintbury, &c., *Reeks in Britt. Contr.* Near Sandleford Priory. Hedge-bank, Newtown Road, *Weaver*. Aldermaston. Greenham. Grassy bank between Hurst and Wokingham, *Melville*.

5. *Loddon*. Park Place. Remenham, *Stanton*. Near Loddon Bridge. Near Twyford. Near Sonning.

The plants from all the above localities belong to the var. **PURPUREUM**, Linn. = *Sedum purpurascens*, Koch, Syn. Fl. Germ. ed. 2, i. 284 (1843). Mr. Tufnail tells me he has gathered the var. **FABARIA** (Koch, Syn. Fl. Germ. 258 (1837), as a species) at Mortimer Wood.

S. Telephium is recorded for all the bordering counties except E. Gloucestershire.

- *S. ALBUM**, Linn. Sp. Pl. 432 (1753). *White Stone-crop*.
Comp. Cyb. Br. 516. Syme, E. B. iv. 52, t. 529. Nyman, 262. Fl. Oxf. 125.
Alien. Old walls in villages. Rather rare. P. June–August.
First recorded for Berkshire by the author in the *Flora of Oxfordshire*, 1886.
1. **Isis**. Kingston Bagpuze. Longworth. Buscot. Faringdon.
2. **Ock**. Marcham, *Fl. Oxf.* Abingdon. Hanney.
3. **Pang**. Streatley. Pangbourn. Bradfield.
4. **Kennet**. Donnington.
5. **Loddon**. Three Mile Cross, *Tufnail*. Spencer's Wood Common. Sonning.
The plants from all the above localities belong to *S. teretifolium* of Lam. Fl. Fr. iii. 84, which is perhaps synonymous with *S. album*.

S. album is naturalized in all the bordering counties.

- S. dasyphyllum**, Linn. Sp. Pl. 431 (1753). *Round-leaved Stone-crop*.
Aizoon dasyphyllum, Dalech. Hist. 1133.
Comp. Cyb. Br. 575. Syme, E. B. v. 53, t. 530. Nyman, 262. Fl. Oxf. 126.
Denizen. On old walls in and about villages, especially abundant on the Coralline Oolite in the Ock district, to which it is practically restricted and in which it is widely distributed and locally common. P. June–August.
First record. Besilsleigh, Mr. W. T. Dyer in *Journ. Bot.* 146, 1871.
1. **Isis**. Eaton Stibble. Cumnor. Appleton.
2. **Ock**. Walls at Besilsleigh, *Dyer*. S. Hinksey, *Boswell*. Tubney, *Walker*. Near Pusey, *Miss M. Niven*. Dry Sandford. Marcham. Cothill. Ferry Hinksey, *Fl. Oxf.* Frilford. Milton. Kingston Bagpuze.
5. **Loddon**. On the Grotto, Windsor Park.
S. dasyphyllum occurs in Surrey, Hants, Wilts, and Gloucestershire in the latter county at Fairford and Lechlade.

- S. acre**, Linn. Sp. Pl. 432 (1753). *Golden Stone-crop*, *Prick Madam*.
Top. Bot. 177. Syme, E. B. iv. 55, t. 532. Nyman, 262. Fl. Oxf. 126.
Native. Dry heathy places, wall-tops, &c. Locally common, but absent as a native plant from a considerable portion of the county.
P. May–July.
First record. Pepper Stonecrop, Dr. Noehden, *Mavor's Agr. Berks*, 1809.
In the following localities for which I am responsible it is, I believe, native.
1. **Isis**. Wytham. Cumnor. Buckland. Buscot, &c.
2. **Ock**. Blewbury, *Lousley*. Besilsleigh, *Whitwell*. Marcham. Tubney. Frilford Heath. Common on the Ridgeway.

3. **Pang.** Common on walls—Hampstead Norris, *Lous'ey*. Streatley, *Pamplin*. Abundant under Unwell Wood. Bucklebury. Frilsham [could barren specimens have been mistaken by *Mr. Bicheno* for *Tillaea* ?]. Cold Ash. Bradfield. Compton Downs.
4. **Kennet.** Burghfield. Mortimer. Aldermaston. Greenham. Crookham. Inkpen. Gibbet Hill. Lambourn. Wickham, &c.
5. **Loddon.** Coleman's Moor. Bearwood. Cookham. Windsor Park. Ascot. Bracknell. Wellington College. Sandhurst. Swinley. Easthampstead, &c.

At Burghfield it occurred as the var. *diminutum*, Haworth, which is only a small state.

S. acre occurs in all the bordering counties.

[**S. SEXANGULARE**, Linn. Sp. Pl. 432 (1753). Syme, E. B. iv. 56, t. 533.

Danesfield, Bucks, *Miss E. Chandler* in *Herb. Brit. Mus.* 1884. Formerly on the walls of Old Sarum, Wiltshire, *Linn. Soc. Trans.* v. (1799) 237.]

***S. reflexum**, Linn. Fl. Suec. App. 463 (1755). *Yellow Stone-crop*.

Aizoon Scorpioides, Ger. Em. 513. *S. rupestre*, var. *reflexum* (Linn.).

Comp. Cyb. Br. 516. Syme, E. B. iv. 56, t. 534. Nyman, 261. Fl. Oxf. 126.

Alien. Old walls and dry banks. Not unfrequent. P. June–August.

First record. South Hinksey, *Mr. Baxter MSS.* 1831. Streatley, Mr.

Pamplin in *Phyt.* v. 155, 1854.

1. **Isis.** Wytham. Cumnor. Appleton.
2. **Ock.** South Hinksey, *Baxter*. Frilford, *Walker*. Marcham. Dry Sandford. Cothill. Abingdon. Kennington.
3. **Pang.** Streatley, *Pamplin*, l. c. Yattendon. Bradfield.
4. **Kennet.** Hampstead Marshall, *Reeks* in *Britt. Contr.* Mortimer.
5. **Loddon.** Near Wokingham Road, quite naturalized, *Penny*, 1874. Shurlock Row. Sonning. Ascot, on railway-bank. Quite naturalized on the side of the railway near Maidenhead.

S. reflexum occurs in all the bordering counties.

[**S. PRUINATUM**, Link in Brot. Fl. Lusit. ii. 209 (1804).

S. Forsterianum, Sm. E. B. t. 1802 (1807). Syme, E. B. iv. 59, t. 537.

Error. Streatley, *Mr. W. Pamplin* in *Phyt.* v. 155, 1854. A small form of *S. reflexum* was almost certainly mistaken for it.]

****S. HYBRIDUM**, Linn. Sp. Pl. 431 (1753). *Novi Comm. Gott.* vi. 5. Fl. Oxf. 125.

Alien. Village walls, as a garden escape. P. July–August.

1. **Isis.** Cumnor.
2. **Ock.** Ferry and South Hinksey. Abingdon.
5. **Loddon.** Maidenhead Cutting. The Grotto, Windsor Park.

****S. STELLATUM**, Linn. Sp. Pl. 433 (1753). *Sibth. Fl. Graeca*, t. 446.

Alien. On walls, as a garden escape, near Frilsham. The Grotto, Windsor Park. Marcham.

[**S. СЕРАЕА**, Linn. Sp. Pl. 431 (1753). *Bot. Register*, t. 1391 (1831). Syme, E. B. iv. 63. Naturalized on a bank at Denham, Bucks, *Mrs. James*.]

****SEMPERVIVUM TECTORUM**, Linn. Sp. Pl. 464 (1753). *House-leek*.

Sempervivum majus, Ger. Em. 510 (1633). Comp. Cyb. Br. 516. Syme, E. B. iv. 60, t. 538. Nyman, 258. Baxt. t. 401. Fl. Oxf. 125.

Alien. Old walls, cottage roofs. Scattered through the county, but without the slightest claim to be considered a native plant. P. June-August.
First record. *S. tectorum*, Dr. Noehden in *Mavor's Agr. Berks*, 1809. South Hinksey, *Mr. Baxter*. 1831. In nearly every village, planted to protect the buildings from lightning—good for the sting of a bee, *Mr. J. Lousley* in *Russell's Cat.* 1839.
It is found in all the bordering counties, as a doubtfully naturalized plant.

DROSERACEAE, DC., Théor. Élém. i. 214 (1813).

DROSERACEAE, Linn. Gen. n. 351 (*Ros Solis*, Tournefort, Inst. t. 127).

D. rotundifolia, Linn. Sp. Pl. 281 (1753). *Sundew.*

Top. Bot. 59. Syme, E. B. ii. 30, t. 182. Nyman, 82. Fl. Oxf. 144.

Native. Uliginous. Bogs and wet heathy ground. Very local and rare in the northern, local in the central, very local in the eastern, but common and generally distributed in the south-western part of the county. P. May–September.

First record. Round-leaved Sundew. . . Likewise upon a Bog in Bagley Wood between Oxford and Abingdon, *W. Coles, Adam in Eden*, 152, 1657.

2. **Ock**. Bagley Wood, *Coles*, 1657 (still there in 1896). *Ros Solis*. Grows in a bog in Chilsey (Childswell) hills, *MS. in Lyte's Herball*, 1660 (still there in 1896). Frilford Heath, *Fl. Oxf.* Cothill Bog.

3. **Pang**. Cold Ash Common, *Russell's Cat.* Fence Wood, *W. M. Rogers*.

4. **Kennet**. Bogs on Snelsmore Common, *Russell's Cat.* Greenham Common, *Rupert Jones*. Mortimer, *Tufnail*. Crookham Common, *Stubbs in Britl. Contr.* Wickham, *Mrs. Batson*. Aldermaston. Common in the bogs of the district.

5. **Loddon**. Bulmarsh, *Rudge, Herb. Brit. Mus.* 1800. Ascot, *Wilkin*. Wellington College, *Penny and Dr. H. Kingsley*. Sunninghill Bog. Swinley. Whitemoor Bog. Common in the bogs of the district.

The so-called variety *ramosa*, in which the peduncle is branched, occurs near Sandhurst, &c.

D. rotundifolia is recorded for all the bordering counties, but it is almost certainly extinct in Oxfordshire.

D. longifolia, Linn. Sp. Pl. 282 (1753), not of Koch or Hayne. *Long-leaved Sundew.*

D. intermedia, Dreves & Hayne, Botan. Bilderbuch, iii. 43 (1798), t. 75.

Top. Bot. 59. Syme, E. B. ii. 33, t. 184. Nyman, 82. Fl. Oxf. 44.

Native. Uliginous. Bogs and wet heathy places. Locally common, but with a more restricted area than *D. rotundifolia*. P. May–August.

First record. *Ros Solis folio oblongo* C. B. P. Bagshot Heath, Mr. S. Doody, in *Ray, Syn.* ed. 2, 345, 1696. In both Berks and Surrey.

3. **Pang.** Cold Ash Common, *Russell's Cat.*

4. **Kenet.** Bogs on Snelsmore Common, *Russell's Cat.* Greenham Common, *Rupert Jones.* Mortimer, *Tufnail.* Burghfield.

5. **Loddon.** Bagshot, *Doody, l. c.* Windsor Great Park, *Gotobed, in Bot. Guide.* Early Heath, *Britt. Contr.* Bulmarsh Heath, *Rudge, in Bot. Guide.* Kingsmeer, Crowthorn, *Salmon.* Wellington College, *Penny.* Risely Common. Sunninghill. Near South Park. Wildmoor Bottom. Near Broadmoor. Sandhurst.

Var. *CAULESCENS*, Hind in *Phyt.* (1857) 27, 117.

Some specimens, which I collected between Sandhurst and Broadmoor and near Edgebarrow Hill, belong to this variety, if indeed it be anything more than a state.

D. longifolia is recorded for Surrey, Hants, Bucks, and Wilts.

[**D. ANGLICA**, *Huds. Fl. Angl.* ed. 2, 135 (1778). *Great Sundew.*

D. longifolia, *Dreves and Hayne, l. c.* (1798). Not of Linn. and Smith.

Top. Bot. 59. *Syme, E. B. ii.* 32, t. 183. *Nyman, 82.*

Error. ? '*D. anglica*, Great Sundew. Dr. Noehden. A curious bog plant,' *Mavor's Agr. Berks*, 1809. The record of '*Ros Solis major longiore folio et erectiore 5. Rati*' (Bobart) *Morison, Hist. Ox.* iii. 620, 1699, has been referred by some authors to *D. anglica*, but I am of opinion that Bobart mistook *D. longifolia* for the larger species. In Morison's Herbarium at Oxford (collected by Bobart) the sheet which should have illustrated p. 620, No. 3, *Ros Solis major*, is absent; No. 2 sheet contains specimens of *D. anglica* labelled '*Ros Solis folio oblongo* C. B. P.,' while No. 1 sheet, labelled '*Ros Solis folio subrotundo* C. B. P.,' contains, in addition to *D. rotundifolia*, specimens of *D. longifolia* and *D. obovata*. The probabilities, therefore, are in favour of considering that Bobart really referred to *D. longifolia* when he was speaking of the Berkshire plant, and not to *D. anglica*, the occurrence of which has not been verified.

From the fact that Dr. Mavor does not mention two long-leaved Sundews occurring in the county, we may presume that the plant recorded in the *Agric. Report of Berks* by Dr. Noehden was *D. longifolia*, Linn. (*D. intermedia*, *Dreves and Hayne*).

D. anglica is recorded with certainty only for Hampshire of the bordering counties.]

GUNNERACEAE, Endl. Gen. 285 (1837).

HALORAGACEAE, Lindl. Veg. King. 722 (1847).

HIPPURIS, Linn. Gen. 11 (Pinastella, Dill.).

H. vulgaris, Linn. Sp. Pl. 4 (1753). *Mare's-tail.*

Top. Bot. 166. *Syme, E. B. iv.* 33, t. 516. *Nyman, 249.* Fl. Oxf. 119.

Native. Lacustral. Slow streams, ponds, and ditches. Local. P. May-July.

First record. Botley Causeway, *Sir Joseph Banks' MS.* about 1770 in *Hudson's Flora Anglica*, in *Bibl. Brit. Mus.* Prope Oxonium, *Sir Joseph Banks, in Herb. Brit. Mus.*

1. **Isis.** Beyond ye turnpikes on Botley Causeway, *Banks*. (The locality may have been actually in Oxford.) Buckland Lake. *Boswell*, in *Fl. Oxf.* Near Eynsham, *Mrs. Westwood*, Near Wytham.
2. **Ock.** Ditches about Oxford, *Rufford*, in *Purt. Midl. Fl.* Near Marcham, *Walker*.
3. **Pang.** Pangbourn, *Newbould*, in *Britt. Contr.* Bradfield.
4. **Kennet.** Kintbury, *Reeks*, in *Britt. Contr.*
5. **Loddon.** Broad ditches, Sonning meadows, *Tufnail*. Maidenhead.
Var. *FLUVIATILIS* [Web.] in Wigg. Prim. Fl. Holsat. 1 (1780), the submerged form, with drawn-out stem and with longer and more pellucid leaves, is probably only a state, not a true variety; it occurs in Buckland Lake.

Hippuris occurs in all the bordering counties.

MYRIOPHYLLUM, Linn. Gen. n. 945 (Vaill. A. G. 1719).

- M. verticillatum**, Linn. Sp. Pl. 992 (1753). *Water Milfoil*.
Top. Bot. 167. Syme, E. B. iv. 31, t. 513. Nyman, 250. Fl. Oxf. 120.
Native. Lacustral. Rivers, streams, ponds, and ornamental waters.
Locally common, and widely distributed in all our larger streams and large sheets of ornamental water. P. June–August.
First record. Ponds and ditches near Eton, *Mr. Gotobed*, in *Bot. Guide*, 1805. Ditches near Bray [*J. Woods*], *Winch*, add. in *New Bot. Guide*, 1835.

Var. *PECTINATUM* (DC., Fl. Fr. v. 529 (1815), as a species), Koch, Syn. Fl. Germ. 244 (1837). This variety, which appears to be a state rather due to growth in shallow water, which during the summer becomes much diminished in depth so that the plant is to a considerable extent terrestrial, has been noticed in White Knight's Lake, *Tufnail*, Buckland Lake, near Wytham in the dry summer of 1894, at Southcote, near Wargrave, &c.

The var. *INTERMEDIUM*, Koch, l. c., is also found.

M. verticillatum occurs in all the bordering counties.

- M. spicatum**, Linn. Sp. Pl. 992 (1753). *Spiked Water Milfoil*.
Top. Bot. 168. Syme, E. B. iv. 32, t. 514. Nyman, 250. Fl. Oxf. 119.
Native. Lacustral. Ditches, ponds, streams. Locally common. P. June–September.
First record. *M. spicatum*, Mr. G. G. Mill, in *Phyt.* i. 987, 1843. See also the author in *Rep. Bot. Rec. Club*, 1880.
1. **Isis.** Buckland, *Boswell*. Buscot. Uffington.
 2. **Ock.** Ditches near the Devil's Backbone, 1844, *Baxter MS.* South Hinksey, the author, l. c. Ferry Hinksey. Wantage. Abingdon. Radley. Ponds by the side of the railway near Steventon. Didecot.
 3. **Pang.** Near Moulsoford. Bradfield.

4. Kennet. Kintbury, *Reeks*, in *Britt. Contr.* Burghfield. Padworth. Ufton. Near Walbury Hill in Wigmoreash Pond, 912 feet above the sea. Theale. Midgham. Newbury. Beenham. Inkpen.
5. Loddon. Cookham Dean, in shallow ponds, *Mill.* Ditches opposite Hurst Grove, *Melvill.* In the Thames at Henley, *Stubbs*, in *Britt. Contr.* Remenham, *Stanton.* Sonning. Wokingham. In the ditches by Loddon Bridge. Windsor Park. Sandhurst. Wargrave. Bracknell. Near Wellington College.

M. spicatum occurs in all the bordering counties, including Buckinghamshire, at Dropmore, &c.

M. alterniflorum, DC., Fl. Fr. v. 529 (1815).

Top. Bot. 168. Syme, E. B. iv. 32, t. 515. Nyman, 250. Fl. Oxf. 120. Native. Lacustral. Ditches and ponds. Very local and rare. P. July.

First record. *Millefolium aquaticum pennatum minus foliolis singularibus latiusculis flosculis subjectis donatum.* In fossa prope Lodden-bridge haud longe a Redinga Oppido (Bobart), *Morison, Hist. Ox.* iii. 622, 1699. A poor figure is given in section 15, t. 4, fig. 7, of the same work, and a very imperfect specimen, representing this record, which may belong to this species, is contained in *Morison's Herbarium* at Oxford. The locality, which is well within the boundary of Berkshire, does not now yield it, but *M. spicatum* occurs there. It was rediscovered by the author in another Berkshire locality in 1890. Bobart was the first to describe it in Britain.

4. Kennet. In Wigmoreash Pond, which is 912 feet above sea level, between Walbury Camp and Gibbet Hill. *M. spicatum* was growing with it in 1890. Enborne, *Jackson*, 1896.
5. Loddon. In a pond near Finchampstead.

It is only recorded from Hants and Surrey of the bordering counties.

CALLITRICHE, Linn. Gen. n. 13 (*Stellaria*, Dill. Gen. 6).

[**C. PALUSTRIS**, Linn. Sp. Pl. 969 (1753). *Water Starwort.*

C. verna, Linn. Fl. Suec. ed. 2, n. 3 (1755). Sp. Pl. ed. 2, 6 (1762). *C. vernalis*, Kuetz. in *Linnaea*, vii. (1832) 175. *Stellaria aquatica*, Lobel. Nyman, 250.

True *C. palustris* differs from *C. stagnalis* by its shorter erect style, and by its smaller fruit. I have been unable hitherto to discover it in Berkshire, but it is a very likely species to occur and should be searched for.

Obs. Dr. Noehden recorded *C. verna* and *C. autumnalis* in Mavor's *Agr. of Berks.* Dr. Mavor says they grow in ditches, ponds, and slow streams, which they sometimes mat over so as to render them passable. The two plants recorded were in all probability *C. stagnalis* and *C. hamulata*.

True *C. palustris* is reported from Surrey.]

C. intermedia, Hoffm. Fl. Germ. 2 (1791).

C. hamulata, Kuetz. in Koch, Syn. Fl. Germ. ed. 1, 246 (1837).

C. autumnalis, Huds. Fl. Angl. 2 (1762), and auct. var. but not of Linnaeus.

Top. Bot. 169. Syme, E. B. viii. 120, t. 1273. Nyman, 250. Fl. Oxf. 121. Native. Lacustral. Streams, ponds, &c. Local. P. May–August. First record. *C. autumnalis*, prope Oxoniam, Sir Joseph Banks, in Herb. Brit. Mus. 1768.

1. **Isis.** Buscot. Buckland.
2. **Ock.** Marcham.
4. **Kennet.** Burghfield. Near Shaw. Hampstead Marshall.
5. **Loddon.** Sandhurst. Virginia Water.

Var. *PEDUNCULATA* (DC., Fl. Fr. iv. 415, as a species). Syme, E. B. viii. 121, t. 1274. *C. autumnalis*, Hook. in E. B. Suppl. t. 2606, not of Linn. This form grows on muddy places, in woods, and by pond-sides, but it is not unlikely that states of *C. stagnalis*, &c., may be confused with it. I have notes of its occurrence in Bagley Wood, Fl. Oxf., at Silchester, Upton, Greenham Common, Ambarrow, Early, Windsor Park, Swinley, &c.

C. intermedia occurs in all the bordering counties.

C. stagnalis, Scop. Fl. Carn. ed. 2, ii. 251 (1772). *Water Starwort*.

Top. Bot. 169. Syme, E. B. viii. 120, t. 1272. Nyman, 250. Fl. Oxf. 121. Native. Inundatal. Ditches, ponds, slow streams, wet places. Common and generally distributed. P. April–August.

First recorded as *C. platycarpa* by Mr. H. C. Watson in Brit. Contr. 1871, and as *C. stagnalis* by the author in Rep. of Bot. Rec. Club, 1881.

Var. *PLATYCARPA* (Kuetz. in Linnaea, vii. (1832) 174, as a species), has the lobes of the fruit nearly parallel and is the commoner form; in *C. stagnalis* the lobes are divergent as in Baxter's figure 392.

C. stagnalis is a very variable plant. The leaves are usually obovate, but when growing on mud they become much narrower until they resemble those of *C. intermedia* (*hamulata*), from which the larger fruit distinguishes it. The fruit is occasionally slightly stalked. The rosettes are never quite so distinctly regular as in *C. obtusangula*. The plant is very frequently barren.

C. stagnalis is too common and widely distributed to need special localities being given. It occurs in all the bordering counties.

C. polymorpha, Lönneroth, Obs. Crit. Pl. Suec. 19 (1854). Nyman, 250. Native. Lacustral. Shallow pools. Very local and rare, but perhaps overlooked. P. June–August.

First found by the author in Berkshire in 1895.

4. **Kennet.** Near Theale. I believe my specimens are rightly named from descriptions, but I have not compared them with typical plants.

C. polymorpha is recorded for Surrey only of the bordering counties.

C. obtusangula, Le Gall, Fl. Morbihan, 203 (1852).

Top. Bot. 169. Fl. Oxf. 121. Nyman, 250.

Native. Lacustral. Ponds, ditches, streams, &c. Locally common.
P. May–August.

First recorded by the author in *Journ. Botany*, 248, 1884.

1. **Isis.** Wytham. Near Kelmscott. Buscot. Near Lechlade.
2. **Ock.** Marcham, *Rep. of Bot. Exch. Club*, 1892. Cothill. Shippon. Hagborne. Ferry Hinksey. Letcombe Regis. Blewbury. Wantage. Lockinge. In a ditch on Abingdon Racecourse. Radley.
3. **Pang.** Moulshford, *Journ. Bot. L. C.* Twyford. Near Pangbourn.
4. **Kenet.** Beenham. Greenham. Theale. Southcote.
5. **Loddon.** Very fine on Coleman's Moor. Winkfield. Near Wargrave. Near Cookham.

C. obtusangula occurs in all the bordering counties.

LYTHRACEAE, Lindl. Nat. Syst. ed. 2, p. 180 (1837).

PEPLIS, Linn. Gen. n. 402 (*Portula*, Dill. Gen. 7).

P. Portula, Linn. Sp. Pl. 332 (1753). *Water Purslane.*

Top. Bot. 172. Syme, E. B. iv. 4, t. 493. Nyman, 252. Fl. Oxf. 123.

Native. Uliginal. Wet places and pond margins on heathy ground.

Locally common in the south-west, but very rare in the northern part of the county. Ascends to 910 feet. P. July–September.

First record. Bulmarsh Heath, *Mr. S. Rudge, in Herb. Brit. Mus.* 1800.

Bagley Wood, *Mr. W. Baxter, in Walker's Fl. of Oxfordshire*, 1833.

2. **Ock.** Bagley Wood, *Baxter, in Walk. Fl.*
3. **Pang.** Cold Ash Common. Near Tilehurst. Near Fence Wood.
4. **Kenet.** North Heath, *Russell's Cat.* Greenham Common, *Stubbs, in Britt. Contr.* Mortimer, *Tufnail.* Snelsmore, *Weaver.* Burghfield. Aldermaston. Near Silchester. Walbury Hill, by Wigmoreash Pond. Hampstead Marshall. Inkpen. Newbury Wash. Near Sandlesford. Not uncommon in the heathy parts of this district.
5. **Loddon.** Bulmarsh, *Rudge.* Watery Lane, *Penny.* Park Place. Warren Row, *Stanton.* Early, *Tufnail.* Ascot. Bagshot. Wellington College. Long Moor. Risely. Finchampstead. Spencer's Wood Common. Sandhurst. Ambarrow. Hurst Green. Windsor Park. By Virginia Water. Bearwood. Easthampstead Plain. Common in the heathy parts of this district. The floating form, *f. callitrichioides* (A. Br.) has been seen in pools near Sandhurst and on Snelsmore Common, &c.

Peplis Portula is recorded for all the bordering counties except E. Gloucestershire.

LYTHRUM, Linn. Gen. n. 532 (*Salicaria*, Tournefort, Inst. t. 129).

L. Salicaria, Linn. Sp. Pl. 446 (1753). *Purple Loosestrife.*

Top. Bot. 171. Syme, E. B. iv. 2, t. 491. Nyman, 251. Fl. Oxf. 122.

Native. Paludal. Sides of streams and ponds, and wet meadows. P. July–October.

Generally distributed by all our streams and forming a great adornment of our river scenery; ‘specially abundant by the Thames, where a glow of rich purple meets the eye, even from a considerable distance, wherever the Purple Loosestrife predominates’.¹ It is a prominent feature in paintings of Thames scenery, and is well delineated in Vicat Cole’s picture of Iffley Mill, &c.

First record. *L. salicaria*, Dr. Noehden, in *Mavor’s Agr. Berks*, 1809.

Kintbury, Mr. W. Hewett, in *Herb. Brit. Mus.* 1843.

L. Salicaria is found in all the bordering counties.

L. *Hyssopifolia*, Linn. Sp. Pl. 447 (1753). Grass Poly.

Hyssopifolia, C. B. Pin. 218. *L. hyssopifolium*, Sibth. Fl. Oxf. 149 (1794).

Top. Bot. 171. Syme, E. B. iv. 3, t. 492. Nyman, 251. Fl. Oxf. 123.

Colonist. Inundatal. Damp places. Very rare. A. June–September.

First record. *L. hyssopifolium*, Mr. Gotobed, in the *Botanist’s Guide*, 1805.

2. Ock. Cholsey, Henslow, 1825, *Herb. Oxf.* Cholsey, Stevens, *Herb. Brit. Mus.* Wallingford. Oxford, Syme, E. B. l. c., refers probably to the same locality.

5. Loddon. Once found in a wet piece of ground near Windsor, Gotobed, l. c. [? Bucks].

It has been recorded for Oxfordshire and Hampshire, but it has not been recently seen in either county.

EPILOBIACEAE, Vent. ex DC., Prod. iii. 35 (1828).

EPILOBIUM, Linn. Gen. n. 426 (*Chamaenerion*, Tournefort, Inst. t. 157).

E. *angustifolium*, Linn. Sp. Pl. 347 (1753). Rose Bay, French Willow, ‘Flowering Withy,’ a Wargrave name.

Chamaenerion angustifolium, Scop. Fl. Carn. ed. 2, i. 271. *Epilobium Gesneri*, Ammann (1685). *Chamaenerion*, Gerard, 386.

Top. Bot. 160. Syme, E. B. iv. 7, t. 495. Nyman, 246. Fl. Oxf. 115.

Native. Sylvestral. Woods, bushy commons and heaths, and railway embankments. Locally common. P. June–September.

First record. *E. angustifolium*, Dr. Noehden, *Mavor’s Agr. Berks*, 1809.

1. Isis. Near Appleton, Miss Hoskins in *Bart. Phaen. Bot.* 14, 1834. Wytham.

2. Ock. Outside of a Copse beyond Childswell Farm (1823), Baxter in *Walk. Fl.* 1833. Bagley, Boswell. Didecot.

3. Pang. Langley Wood. Westbrook, W. M. Rogers. Streatley woods, Tufnail, increasing rapidly. Hawkridge Wood. Tile-

¹ Hall, Mrs. S. C., *Book of the Thames*.

hurst. Pangbourn. Unwell Wood. Basildon Wood. Near Bradfield.

4. Kennet. Wood near Snelsmore Common, *W. M. Rogers*. Roadside near Woodhay Common, *Bunny* in *Russell's Cat*. Mortimer, *Tufnail*. Wickham, *Mrs. Batson*. Aldermaston Wood. Near the top of Walbury Hill. Brimpton. Padworth. Tidmarsh. Wickham.
5. Loddon. Bisham Wood, sparingly, *Mill*. Wargrave, *Watson*. Early, by the railway, *Tufnail*. Near Wellington College, *Penny* in *Britt. Contr.* Park Place. Chalk pit, Wargrave, *Stanton*. Bracknell. Very fine near Sandhurst. Sunninghill. Ambarrow. Bagshot. Haines Hill. Swinley Wood. Windsor Park. Culham woods, near Hurley.

Var. *BRACHYCARPUM*, Syme, E. B. l. c., t. 496 = *E. brachycarpum*, Leighton, Ann. Nat. Hist. Ser. i. viii. (1841) 401.

This occurs in Bagley Wood, near Didcot, near Pangbourn, near Bracknell, &c. It appears to be usually an escape from gardens. It has shorter and thicker fruits than the following.

Var. *MACROCARPUM*, Syme, l. c., t. 495 = *E. macrocarpum*, Steph. in Ann. Nat. Hist. (1842) 170, Ser. i. viii, is our commoner form and is undoubtedly a native plant of the woods in the Pang, Kennet, and Loddon districts.

Epilobium angustifolium is found in all the bordering counties.

E. hirsutum, Linn. Sp. Pl. 347 (1753). *Codlins and Cream*, Willow Herb. Top. Bot. 161. Syme, E. B. iv. 10, t. 497. Nyman, 246. Fl. Oxf. 116. Native. Paludal. River-, brook-, stream- and pond-sides, very common in all the low-lying parts of the county. P. June–September. First record. Neare Binsey is a place, or wall, where groweth a high herb called *Lysymachia*, as high as a man. See Dr. Pelham, *A. Wood, Antig. of City of Oxford* 1661–6, edited by Rev. A. Clark, 1889¹. *Red Lysimachion* grows plentifully in our Oxford ditches, *MS. in Lytle's Herball*, 1660. *E. hirsutum*, Dr. Noehden, *Mavor's Agr. Berks*, 1809.

The banks of the Thames are often bordered with a profuse growth of this plant, and it forms a rich mass of colouring either in flower or in late autumn when the abundant seed-pods have opened; in the latter condition it is frequently represented in Keeley Halswelle's paintings of the Thames. Mr. G. D. Leslie in *Our River* says the Willow Herb and the Loosestrife give the most influential masses of colour.

E. hirsutum varies considerably in the degree of hairiness of the leaves, in the size of the flower (white-flowered plants are rare), and in the pubescence of the pods. A subglabrous form (*f. virescens*, Haussk.), var. *subglabrum*, Koch, is not unfrequent.

¹ See also *Liber Niger Scaccarii*, T. Hearne, ii. 589, 1728.

Var. **VILLOSISSIMA**[UM], Koch, Syn. Fl. Germ. 240 (1837). A handsome form, in which the pods are thickly covered with long patent hairs, and the whole plant is more hairy (probably *f. trichocarpa*, Haussk.), is not unfrequent, as on Boar's Hill, about Childswell Farm, near Kennington, &c. Specimens were sent by the author to the Bot. Exch. Club in 1892.

× *E. HIRSUTO-MONTANUM* = *E. purpureum*, Fries, Nov. Fl. Sv. iii. 185 (1842). See Focke, Pflanz.-Mischl. 158 (1881). Has been found near Sunningwell.

× *E. HIRSUTO-PARVIFLORUM*, Wimm. in Verh. Schles. Ges. (1848) 125. Occurs near Radley, &c.

E. hirsutum is found in all the bordering counties.

E. parviflorum, Schreb. Spic. Fl. Lips. 146 (1771).

E. hirsutum var. *b.*, Linn. Sp. Pl. 348 (1753). *E. villosum*, Curt. Fl.

Lond. ii. t. 22 (1777). *E. hirsutum*, Huds. Fl. Angl. 161.

Top. Bot. 161. Syme, E. B. iv. 11, t. 498. Nyman, 247. Fl. Oxf. 116. Native. Paludal. Ditches, meadows, brook-sides, boggy and wet places, but not so dependent on water as the preceding species.

Common and generally distributed in the low-lying portions of the districts, also in bogs in hilly country. P. June-September.

First record. Blewbury, Mr. J. Lousley in *Russell's Cat.* 1839, and by Mr. G. G. Mill in *Phyt.* 986, 1843.

E. parviflorum is rather variable. A very hairy form (*f. tomentosa*, Haussk.) is found at Cothill and near Kintbury. In drier situations the leaves become narrower and more hairy (*f. aprica*, Haussk.); this I have seen at Mortimer, near Bradfield and Hermitage. In very wet shady situations the plant varies with much larger and more glabrous leaves (*f. umbrosa*, Haussk.). Near Kennington a very broad-leaved form occurred with glabrescent slightly cordate and very broad leaves (*f. cordata*, Haussk., ? *E. cordatum*, Biv.). This *Epilobium* hybridizes freely with other species.

× *E. PARVIFLORO-ROSEUM*, F. Schultz, Grundz. Phytost. (1863) 143. *E. persicinum*, Reichb. Fl. Germ. Exc. 635 (1830).

Near Silchester. Between Mortimer and Strathfieldsaye. Stone work of river-bank between Oxford and Iffley with both parents, only two plants.

E. parviflorum occurs in all the counties bordering upon Berkshire.

E. montanum, Linn. Sp. Pl. 348 (1753). *Smooth-leaved Willow Herb.*

Top. Bot. 161. Syme, E. B. iv. 12, t. 499. Nyman, 248. Fl. Oxf. 118. Native. Sylvestral. Damp woods, hedges, thickets, ditches, and as a garden weed, &c. Common. It occurs in every district and is often to be found on pollard willows. Next to *E. hirsutum* this is the commonest species of *Epilobium*. P. May-September.

First record. *E. montanum*, Dr. Noehden, *Mavor's Agr. Berks*, 1809.

E. montanum is found in several varying forms, including

Var. **VERTICILLATUM**, Koch, Syn. 240 (1837), with leaves in whorls of three instead of in pairs, which occurs in Wytham Wood, Unwell Wood, and Bracknell. See *Rep. of Bot. Exch. Club* (1888) 219.

A white-flowered form, *f. albiflora*, has been seen in Unwell Wood, &c.

In shady places in Wytham and near Padworth, &c., the *f. umbrosa*, Haussk., has been observed. Near Hurst a form or variety occurs, with something of the look of *E. colinum*, in which the upper leaves are more deeply cut. A very large-leaved form, *f. grandifolia*, Haussk., occurs near Early, &c. Near Bracknell, Kintbury, and Hermitage a form occurs (*f. aprica*) which is similar to the so-called *E. Duriaei*, figured in *Journ. Bot.* (1896); it is probably not uncommon in the heathy districts, and has also been seen on chalk rubble near Reading.

At Padworth *E. montanum* occurred with dark-red flowers, but not differing in other respects from the type.

E. montanum affords several hybrids.

× *E. MONTANO-OBSCURUM*, F. Schultz in *Jahresb. Pollich.* 1857 (? *E. aggregatum*, Čelakovsky), which has been noticed near Hermitage, near Hurst, and near Aldermaston.

× *E. MONTANO-PARVIFLORUM*, Michalet in *Bull. Bot. Soc. France*, ii. (1855) 734 (*E. limosum*, Schur), which has been noticed near Uffington.

× *E. MONTANO-ROSEUM* = *E. montanum*, var. *parviflorum*, Wahl. *Fl. Suec.* i. 242 (1831), *E. heterocaulis*, Borbas, which was found on waste ground near Reading, where both parents occurred.

For a very interesting account of hybridization of this species, a paper by Dr. T. Bell-Salter, which appeared in *Phyt.* (1852) 737-42, should be consulted.

E. montanum occurs in all the bordering counties.

E. lanceolatum, Sebast. et Mauri, *Fl. Rom. Prod.* 138 (1818).

Top. Bot. 161. Syme, *E. B.* iv. 14, t. 500. Nyman, 247.

Native. Septal. Hedge-banks and ditches on gravelly soil. Very local and rather rare, occurring in a very restricted area. P. July-September.

First found in Berkshire by the author in 1888.

4. **Kennet.** Mortimer.

5. **Loddon.** Between Mortimer and Silchester, and between Mortimer and Strathfieldsaye.

The *f. umbrosa* occurs near Strathfieldsaye in Berkshire.

× *E. LANCEOLATO-OBSCURUM* = (*E. Lamotteanum*, Haussk.) has been found by me near Mortimer, and Prof. Haussknecht assents to the name.

× *E. LANCEOLATO-ROSEUM*. Discovered by me in 1888 near Mortimer growing with both parents, and kindly named for me by Prof. Haussknecht.

E. lanceolatum is recorded for Surrey, Hants, and W. Gloucestershire.

E. roseum, Schreb. Spic. Fl. Lips. 147 (1771).

E. tetragonum of the Linnaean Herb. No. 5, but not of Sp. Pl.

Top. Bot. 161. Syme, E. B. iv. 15, t. 501. Nyman, 247. Fl. Oxf. 117. Native. Ditches, stream-sides, garden ground. Local and rather rare.

P. June–September.

First recorded by the author for Berkshire in 1886.

2. **Ock.** By the river-side near Oxford on the stonework of the Berkshire side.

3. **Pang.** Near Reading. Pangbourn.

4. **Kennet.** Near Mortimer, *Tufnail*. Between Mortimer and Silchester. Between Mortimer and Strathfieldsaye. Padworth. By the Emborne Stream near Sandleford, and near Greenham Common.

5. **Loddon.** Shinford Green. Near Windsor. By the Blackwater.

E. roseum, var. *simplex*, Lasch, in *Linnaea* (1831), 492, occurs in garden ground at Reading.

It is somewhat remarkable to find this plant growing to a height of three feet by brook-sides, and to find it in garden ground even in a large town like Reading, where it is usually seen about the railway station, bearing the smoke without damage. In such situations the plant is, however, less luxuriant.

E. roseum is recorded for all the bordering counties except Bucks.

Obs. In the Winch MSS. in the Library of the Linnean Society, *E. roseum* is entered for Newbury on the authority of Mr. Bicheno, but Mr. H. C. Watson, who used the notes made by Mr. Winch for the *New Botanist's Guide*, did not quote this; possibly he had some doubts of the correctness of the name.

E. tetragonum, Linn. Sp. Pl. 348 (1753). *E. adnatum*, Griseb. in Bot. Zeit. x. (1852) 851.

Top. Bot. 162. Syme, E. B. iv. 16, t. 502. Nyman, 247. Fl. Oxf. 117. Native. Paludal. Ditches, stream-sides, &c., in low-lying districts.

Locally common. P. July–September.

First certainly recorded by the Rev. W. W. Newbould and Dr. Trimen in *Britt. Contr.* 1871. (The *E. tetragonum* from Bisham Wood recorded by Mr. G. G. Mill in *Phyt.* 986, 1843, was probably *E. obscurum*.)

1. **Isis.** Shrivenham. Bablock Hythe. Appleton.

2. **Ock.** Wootton. Marcham. Kennington. Didcot. Radley. Abingdon. Near Wantage. Uffington. Sunningwell.

3. **Pang.** Tidmarsh, *Newbould*. Thames side near Tilehurst Station, *Tufnail*. Near Pangbourn.

4. **Kennet.** A dwarf state occurred in ground recently brought into cultivation near Burghfield, and was passed as correctly named by Mons. W. Barbey, see *Rep. Bot. Exch. Club* of 1887. Theale. Kintbury. Midgham.

5. Loddon. Wargrave. Wokingham, *Trimen*. Brickfields, Wellington College, *Penny*. Park Place. Crazey Hill. By the side of the road near Bowsey Hill, *Stanton*. Waltham. Ruscombe. Coleman's Moor. Near Shurlock Row. Windsor. Near Blackwater. Near Arborfield. Haws Hill. Winkfield. Bracknell, &c.

× *E. TETRAGONO-PARVIFLORUM*, F. Schultz. *E. weissenburgense*, F. Schultz, in Pollichia (1861), 106. *E. adnatum* × *parviflorum*, Haussk. Mon. Epilob. 105. Near Sunningwell in 1893. The *E. parviflorum* parentage is very marked, while the influence of *E. tetragonum* is shown in the toothing of the leaves, in the slightly decumbent limb of some of the leaves, and in the lined stem. Another hybrid, in which the influence of *E. tetragonum* is more apparent, occurred near Uffington in 1889. Another plant from the same locality was fairly intermediate; see an interesting note by my friend, the Rev. E. S. Marshall, in *Journ. Bot.* (1891) 7.

E. tetragonum, *f. stenophylla*, Haussk., occurs near Winkfield, Hurst, and Bray, whence specimens were distributed by the author through the *Bot. Exch. Club* in 1892.

E. tetragonum is recorded for all the bordering counties except Buckinghamshire, but it occurs in that county near Taplow.

E. obscurum, Schreb. Spic. Fl. Lips. 147 (1771).

E. tetragonum, Linn. Herb. No. 5, not of Sp. Pl. *E. glabrum minus*, J. Hill, Brit. Herb. 148.

Top. Bot. 162. Syme, E. B. iv. 17, t. 503. Nyman, 247. Fl. Oxf. 117. Native. Paludal. Ditches and damp places, more frequent in hilly situations. Locally common. P. June–September.

First certain record. Ascot, Mr. H. C. Watson, in *Britt. Contr.* 1871, but the *E. tetragonum* from Bisham Wood, recorded by Mr. G. G. Mill in Phyt. i. 986, 1843, was probably this species.

1. Isis. Near Wytham. Near Faringdon.
- 2. Ock. Cumnor Hurst, *Morrison*, 1891. Abingdon. Frilford. Wittenham.
3. Pang. Bucklebury. Tidmarsh.
4. Kennet. Newbury. By the Emborne Stream. Mortimer. Aldermaston. Near Silchester. Theale. Greenham. Hampstead Marshall. Wickham. Chilton Foliat. Inkpen.
5. Loddon. Ascot, *Watson*. Bracknell. Finchampstead. Early. Bagshot. Sandhurst. Crowthorn. Wargrave. Long Moor. Bracknell. Windsor Park. Frogmore. Near Cookham. Bisham. Winkfield. Hurst. Ambarrow. Arborfield. Farley Hill. Ashridge Wood, near Wokingham.
- × *E. OBSCURO-PALUSTRE*, F. Schultz, in Jahresb. Pollich. (1854) 48

(*E. Schmidtianum*, Rostkov.), occurs by the Emborne Stream near Greenham Common.

× *E. OBSCURO-PARVIFLORUM*, Michalet, in Bull. Bot. Soc. Fr. (1855 734 (*E. dacicum*, Borbas), has been seen near Sandhurst and Hurst.

The form *strictifolia*, Haussk., has been found near Bracknell, the form *elatio*, Haussk., occurs near Bray, and the *f. flaccida*, Haussk., near Kintbury, &c.

E. obscurum occurs in Wilts, Hants, Surrey, Bucks, and Oxfordshire.

[**E. LAMYI**, F. Schultz in Flora (1844), 806, is recorded for Surrey and Gloucestershire.]

E. palustre, Linn. Sp. Pl. 348 (1753). *Marsh Willow Herb.*

Top. Bot. 162. Syme, E. B. iv. 18, t. 504. Nyman, 248. Fl. Oxf. 118.

Native. Paludal. Marshes, boggy ground, and wet places. Local, and not very common. B. June-September.

First record. *E. palustre* without locality in Mrs. Russell's Cat. 1839.

1. Isis. Wytham.

2. Ock. Powder Hill Copse, Boswell. Tubney, Walker. Frilford. Fl. Oxf. Boar's Hill.

3. Pang. Hermitage. Upper Basildon.

4. Kennet. Greenham Common, Rupert Jones. Speen Moor, Weaver. Snelsmore Common. Aldermaston. Benham. Hampstead Marshall. Pebble Hill. Padworth. Upton. Bagnor.

5. Loddon. Marsh near Queen's Bridge, Penny. Bulmarsh, Tufnail, in Fl. Oxf. Park Place. Crazey Hill, Stanton. Near Wellington College. Ambarrow. Crowthorn. Sunninghill. Bracknell. Ascot. Windsor Park. Pond-side near Cumberland Lodge. Near Virginia Water. Coleman's Moor. Sunningdale.

Var. LINEARE (Krause, in Verh. Schles. Ges. (1851) 78, as a species). Aldermaston, Sunninghill, &c.

× *E. PALUSTRE-PARVIFLORUM*, Krause, l. c. 88 = *E. rivulare*, Wahl. Fl. Upsala, 126 (1820). By the Emborne side, near Greenham Common.

E. palustre is recorded for all the bordering counties.

CIRCAEA, Linn. Gen. n. 24 (Tournefort, Inst. t. 155).

C. lutetiana, Linn. Sp. Pl. 9 (1753), and Gerard, 280. *Enchanter's Nightshade.*

Top. Bot. 164. Syme, E. B. iv. 28, t. 511. Nyman, 249. Fl. Oxf. 118.

Native. Sylvstral. Moist shady woods. Widely distributed and locally abundant. P. June-August.

First record. *C. lutetiana*, Dr. Noehden, in Mavor's Agr. Berks, 1809.

With *Puccinia circae*, Pers., and *Erysiphe nitida*, Grev., on it in Bagley Wood in 1826, Baxter, Stirp. Crypt. Ox. n. 97.

C. lutetiana is too common and generally distributed through all the

districts to require a list of localities being given; it is abundant at Wytham and Bagley; some of the specimens are the var. *CORDIFOLIA*, Lasch, in *Linnaea*, ii. (1827) 446. In dry woods the *f. minor* occurs and forms are found with glabrous or with hairy stems.

Circaea lutetiana is found in all the bordering counties.

[*C. ALPINA*, Linn., is recorded in Townsend's *Flora of Hampshire*, on the faith of specimens in the Sherardian Herbarium at Oxford, which were collected near Petersfield. The specimens I should refer without doubt to the *f. minor* of *C. lutetiana*.]

[*LUDWIGIA APETALA*, Walter, *Fl. Carolin.* 89 (1788) = *L. palustris*, Elliot, *Sketch*, i. 211 (1821) = *Isardia palustris*, Linn. *Sp. Pl.* 120 (1753).

Occurs in the New Forest, Hampshire.]

OENOTHERA, Linn. *Gen.* n. 424 (*Onagra*, Tournefort, *Inst.* t. 156).

****Oe. BIENNIS**, Linn. *Sp. Pl.* 346 (1753). *Evening Primrose.*

Onagra biennis, Scop. *Fl. Carn.* ed. 2, i. 269.

Comp. Cyb. Br. 513. Syme, *E. B.* iv. 24, t. 508. Nyman, 249. *Fl. Oxf.* 118.

Alien. Railway banks, waste places. Rare. B. June-August.

First record. *Oenothera vulgaris*, Mr. H. Weaver in *Hawkins' Guide to Newbury*, 1891.

2. *Ock.* Near Tubney, *Mr. F. Walker*, who was the first to find the species in Berkshire.
4. *Kennet.* Newbury, *Weaver*. By the railway near Southcote and near Reading.
5. *Loddon.* By the railway near Twyford. Quite naturalized on heathy ground near Bracknell.

It is found more or less naturalized in all the bordering counties.

CUCURBITACEAE, Juss. in *Hort. Trian.* (1759).

BRYONIA, Linn. *Gen.* n. 970 (Tournefort, *Inst.* t. 28).

B. dioica, Jacq. *Fl. Austr.* ii. 59, t. 199 (1774). *White Bryony, Mandrake.*

Bryonia alba, Gerard, 720, 1597 (not of Linn.).

Top. Bot. 172. Syme, *E. B.* iv. 35, t. 517. Nyman, 246. *Fl. Oxf.* 115.

Native. Septal. Hedges, wood-borders, thickets, generally distributed, but more frequent on the Limestone and Chalk. Very local and rather rare in the heathy districts. P. May-July.

First record. Sonning, *Herb. Brit. Mus.* 1800. *Bryonia dioica*, Dr. Noehden, in *Mavor's Agr. Berks*, 1809.

Bryonia is found in all the bordering counties.

UMBELLIFERAE, B. Juss. in *Hort. Trian.* (1759).

Ammiaceae, Presl, *Delic. Prag.* (1822) 1.

HYDROCOTYLE, Linn. *Gen.* n. 288 (Tournefort, *Inst.* t. 173).

H. vulgaris, Linn. *Sp. Pl.* 234 (1753). *Marsh Rot, Marsh Pennywort.*

Top. Bot. 186. Syme, *E. B.* iv. 89, t. 566. Nyman, 319. *Fl. Oxf.* 143.

Native. Uliginal. Bogs, marshes, &c. Locally common, but rather rare in the northern and eastern part of the county. P. May-Aug.

First record. *H. vulgaris*, Mr. Bicheno, in *Mavor's Agr. Berks*, 1809.

1. **Isis.** Buckland, *Boswell*. Wytham.
2. **Ock.** Marcham, *Walker*. Boar's Hill. Bagley. Frilford, *Fl. Oxf.* Cothill. Sunningwell. Appleford.
3. **Pang.** Fence Wood, very fine specimens. Bucklebury. Oare Common.
4. **Kennet.** Bogs on Snelsmore Common, *Russell's Cat.* Greenham, *Weaver*. Wickham, *Mrs. Batson*. Frequent in the boggy portions of the district.
5. **Loddon.** Everywhere about Wellington College, *Penny*. Bulmarsh, *Tufnail*. Warren Row, *Stanton*. Abundant in the heathy portion of the district. A floating form occurs in Virginia Water. Near Finchampstead. Hurst Green. Bearwood. Twyford. Cookham. Waltham, &c.

Hydrocotyle occurs in all the bordering counties.

SANICULA, Linn. Gen. n. 289 (*Tournefort*, Inst. t. 173).

S. europaea, Linn. Sp. Pl. 235 (1753). *Wood Sanicle*.

S. officinarum, C. B. Pin. 319. *Sanicula*, *Brunfels*.

Top. Bot. 187. Syme, E. B. iv. 92, t. 568. Nyman, 319. *Fl. Oxf.* 143. Native. Sylvestral. Woods, thickets, and bushy places. Abundant throughout the county, except in the pine woods of the south-west. P. April-August.

First record. *S. Europaea*, Dr. Noehden, in *Mavor's Agr. Berks*, 1809. East Ilsley, *Mr. Hewett*, in *Herb. Brit. Mus.* 1839. *Puccinia saniculae*, Hook., grows on it in Bagley Wood, *Baxt. Phaen. Bot.* t. 235, 1837.

The *Sanicle* is especially frequent in the woods of the central chalk plateau, where I have seen it at an altitude of over 800 feet, but it occurs in all the districts of the county as well as in all the bordering counties.

CONIUM, Linn. Gen. n. 299 (*Cicuta*, *Tournefort*, Inst. t. 160).

C. maculatum, Linn. Sp. Pl. 243 (1753). *Hemlock*.

Top. Bot. 187. Syme, E. B. iv. 173, t. 629. Nyman, 315. *Fl. Oxf.* 143. Native. Septal, sylvestral. Coppices, hedges, river-banks. Rather local. More frequent on the Clay formations, especially where there is a stratum of Drift gravels. P. June-August.

First record. *C. maculatum*, Dr. Noehden, in *Mavor's Agr. Berks*, 1809.

1. **Isis.** Appleton. Pusey. Colleshill. Faringdon. Wytham. Cumnor.
2. **Ock.** Boar's Hill, *Boswell*. Didcot. Near the so-called British village termed Coles Pits. Near Pusey. Appleford. Wittenham. Cothill. Near Wantage. Radley. Sunningwell. Wootton. Marcham. Tubney. Common near Didcot. Wittenham, &c.

3. **Pang.** Beedon, Langley, *W. M. Rogers*. Hampstead Norris, *Herb. Brit. Mus.* 1839, *W. Hewett*. Sulham, *Tufnail*. Yattendon. Ashampstead. Tilehurst. Bradfield. Unwell Wood. Near Cold Ash Common. Near Bucklebury. In a flinty cornfield near Tidmarsh.
4. **Kennet.** North Heath, *W. M. Rogers*. Stock Cross Road, *Mrs. Cecil*. Abundant near Theale. Beenham. Englefield. Sandleford. By the Emborne Stream near Greenham Common. Hampstead Marshall. Stock Cross Common. Near Shaw. Burghfield, nine feet high. Aldermaston. Padworth. Shefford. Kintbury. Bagnor.
5. **Loddon.** Exceedingly fine by the river at New Lock, *Mill*. Swallowfield, *Tufnail*. Hedge behind Sandhurst Rectory, *Penny*. Between Henley and Wargrave, *Stanton*. Risely. Twyford. Maidenhead. Waltham. Hurley. Park Place. Wargrave. Sonning. Early. Near Loddon Bridge. Near Cookham. Bray. Near Old Windsor. Binfield, &c.

Conium maculatum is found in all the bordering counties.

The glabrous leaves, the segments of which are tipped with a small white point, distinguish it from any other British species. It occurs in all the bordering counties.

SMYRNIUM, Linn. Gen. n. 325 (Tournefort, Inst. t. 168).

***S. Olusatrum**, Linn. Sp. Pl. 262 (1753).

Alexanders.

Top. Bot. 187. Syme, E. B. iv. 177, t. 631. Nyman, 315. Fl. Oxf. 143. Denizen. Hedge-banks. Very local. B. April-May.

First record. *Hipposelinum Theophrasti* vel *Smyrniun Dioscoridis* Offic., C. B. Pin. 154. About Windsor Castle, *Blackstone*, Spec. Bot. 37, 1746. *S. olusatrum*, Dr. Noehden, *Mavor's Agr. Berks*, 1809, where it is said to have been formerly cultivated in gardens instead of celery.

4. **Kennet.** In a lane near Southcote, *F. W. Stansfield*, *M.B.* It is abundant near Southcote, occurring in several hedges in profusion.

5. **Loddon.** About Windsor Castle, *Blackstone*.

Smyrniun is recorded for Surrey, Hants, W. Gloucestershire, and Oxfordshire, but it is a very doubtful native in most of its inland localities in Britain.

BUPLEURUM, Linn. Gen. n. 291 (Tournefort, Inst. t. 163).

B. rotundifolium, Linn. Sp. Pl. 236 (1753).

Hare's Ear, *Thoron-wax*.

Top. Bot. 194. Syme, E. B. iv. 120, t. 589. Nyman, 310. Fl. Oxf. 142. Colonist. Agrestal. Cornfields, chiefly on gravelly soil. Local and rare. A. June-August.

First record. *B. rotundifolium*, Mr. Bicheno, in *Mavor's Agr. Berks*, 1809.

1. **Isis.** Buckland. Fields near Bahlock Hythe Ferry, *Boswell*.
2. **Ock.** Cornfields between Ferry Hinksey and Cumnor Hurst. *Baxter*, in *Walk. Fl.* 1833. On the ridge of hills above the Vale of Berks. On Robin Hill and on Long Meer Piece, Blewbury, *Lousley* in *Russell's Cat.* 1839. Between Wootton and Dry Sandford, the author, in *Rep. of Bot. Rec. Club*, 1886. Near Tubney, *Walker*. Between Cothill and Shippon.
3. **Pang.** On the ridge of hills above the Vale of Berks, *Lousley*, l. c. Compton, *Hewett's Hist.* *Streatley*, *J. S. Mill*, in *Hooker's Brit. Fl.* ed. 2 and 3, 131.
4. **Kennet.** Near Wickham, *Mrs. Batson*. In the allotment gardens by Palmer's Park, Reading, *Tufnail*. Given without locality by Mr. Flower, in *Robertson's Env. of Reading*, 1843.

Bupleurum rotundifolium is recorded for all the bordering counties.

[**B. tenuissimum**, L., a semi-maritime species, and a solitary specimen of **Bupleurum falcatum**, L., have been found in Surrey.]

[**APINELLA** (Neck. Elem. Bot. i. 91) **GLAUCA**, mibi. *Trinia glaberrima*, Hoffm. Gen. Umb. Ed. 1, 93. *T. vulgaris*, DC., Prod. iv. 103. *Pimpinella glauca*, Linn. Sp. Pl. 264 (1753). Occurs on St. Vincent's Rocks in W. Gloucestershire.]

APIUM, Linn. Gen. n. 329 (Tournefort, Inst. t. 160).

A. graveolens, Linn. Sp. Pl. 264 (1753). *Wild Celery*, *Smallage*.

Top. Bot. 189. Syme, E. B. iv. 98, t. 572. Nyman, 309. Fl. Oxf. 141. Native. Paludal. Marshy meadows, brook-sides. Very local as a native plant. It occurs also as a garden straggler occasionally in waste places. P. June-September.

First recorded by Mr. J. Lousley in *Russell's Cat.* 1839, and as a native plant by the author in *Rep. of Bot. Rec. Club* for 1881, and in the *Fl. of Oxf.* 1886.

1. **Isis.** Cumnor, *Boswell*, where it was probably of garden origin.
2. **Ock.** Native in Marcham meadows and by the side of the road between Marcham and Abingdon. See *Fl. Oxf.* 141. In the ditches near Corderoy's Mill, and in Church Lane near the Vicarage, Blewbury, at Hagborne and Upton, not very plentiful, *Lousley*, l. c. (Probably the garden plant *A. dulce*, Mill. Gard. Dict. ed. 8 (1768).)

A. graveolens occurs as a native plant in Oxfordshire, Bucks, Surrey, and Hants, but only as a casual in Wilts.

A. nodiflorum, Reichb. Ic. Fl. Germ. et Helv. xxi. 10, t. 1846 (1867). *Common Water Parsnep*.

Helosciadium nodiflorum, Koch, in Nov. Act. Cur. xii. i. (1824) 126. *Sium nodiflorum*, Linn. Sp. Pl. 251 (1753).

Top. Bot. 190. Syme, E. B. iv. 100, t. 573. Nyman, 309. Fl. Oxf. 141.

Native. Paludal. Ditches, shallow slow streams, wet places. Common and widely distributed, occurring in all the districts. P. June-October.

First record. *Sium nodiflorum*, Creeping water skerret, Dr. Noehden. *Mavor's Agr. Berks*, 1809.

Apium nodiflorum is too frequent in the county to need localities being given. The plant shows considerable variation. In shady ditches it is often found with stems three feet in length and larger leaves, having pinnae two inches long. When it grows in turfy soil the whole plant may not cover more than a few inches of ground. Two varieties are admitted into our floras, var. *OCREATUM*, Bab. Man. Brit. Bot. Ed. 8, 157 = *Helosciadium nodiflorum*, var. *ochreatum*, DC., Prod. iv. 104 (1830). *H. repens*, E. B. t. 1431, not of Koch, l. c.

1. **Isis.** Wytham. Appleton. Cumnor. Near Faringdon.
2. **Ock.** *Sium repens*. Between South Hinksey and the Abingdon Road, *Baxter in Pert. Midl. Fl.* iii. 25 (1821). Cothill. Marcham. Wantage. Frilford.
3. **Pang.** Pangbourn. Near Moultsford.
4. **Kennet.** *Sium repens*, Hampstead Park, *Russell's Cat.* Near Beenhams. Southcote. Aldermaston. Mortimer.
5. **Loddon.** Foot of Winter Hill (*H. repens*), *Britt. Contr.* Near Wargrave. Waltham. Bray. Old Windsor. Windsor Park. Easthampstead. Loddon Bridge. Sonning.

Var. *REPENS*, Hook. fl. Stud. Fl. 157 (1870). *Sium repens*, Linn. f. Suppl. i. 81. *A. repens*, Reichb. l. c., t. 1855. *Helosciadium repens*, Koch, l. c. 126.

1. **Isis.** In the Wytham meadows.
2. **Ock.** In the Thames meadows near Oxford.
5. **Loddon.** In a ditch at Early, *Tufnail*. (I have not seen this.)

I am inclined to refer the plant, which is found on Port Meadow in Oxfordshire and in other meadows on the Berkshire side of the stream, to this variety. The involucre has from four to six bracts, the peduncle is more than an inch long, being longer than the leaves. In cultivation in garden loam the plant becomes much larger, the leaves increasing to four inches, while the length of the peduncle remains practically the same, but the number of the involucels is reduced to two or three and they become dimidiate. For cultivated specimens I am indebted to my friend Mr. Rose. Probably this creeping peduncled form has been evolved because the plant grows in a situation which is from time to time submerged, and the peduncle has been produced in order to lift the fruit above the water. In the ordinary ditch form, which roots only at the lower nodes, the main stem carries the sessile umbels above the water. The number of the involucels, which Koch considers to be of considerable importance in

separating his *repens* from *nodiflorum*, would appear not to be permanent, as in one year's cultivation the number was reduced from 5-6 to 3-4.

A. nodiflorum is found in all the bordering counties.

A. inundatum, Reichb. f. l. c., t. 1855 (1867). *Water Honewort*.

Sison inundatum, Linn. Sp. Pl. 253 (1753). *Helosciadium inundatum*, Koch, l. c. 126.

Top. Bot. 190. Syme, E. B. iv. 102, t. 575. Nyman, 310. Fl. Oxf. 142. Native. Paludal. Pools on heaths, ditches, &c. Locally common, more frequent in the heathy districts. P. June-August.

First record. *Sison inundatum*. By Caversham Bridge. Marshes about Newbury, *Milne and Gordon, Indigenous Botany*, 411, 1793.

1. **Isis**. Wytham meadows.

2. **Ock**. Near Abingdon. Near Radley. Ditch between Marcham and Abingdon.

3. **Pang**. Fair Cross Pond, *W. M. Rogers*. Caversham Bridge, *Milne and Gordon*. Oare Common. Near Mouldsford.

4. **Kennet**. Marshes about Newbury, *Milne and Gordon*. *Hydrocotyle inundata*. Greenham Common, *Bicheno in Mavor's Agr. Berks*. Burghfield. Mortimer. Silchester. Aldermaston Decoy, and Soak. Hampstead Marshall. Pond near Newbury Wash. Wigmoreash Pond, near Gibbet Hill, 912 feet altitude.

5. **Loddon**. Well. Coll. List, 1894. Swallowfield, *Tufnail*. Bulmarsh. Coleman's Moor. Bearwood. Bagshot Heath. Finchampstead. Risely. Hurst Green. Virginia Water. Sunningdale. Easthampstead. Sandhurst. Blackwater. Long Moor, &c.

Common over a considerable portion of the Kennet and Loddon districts.

A. inundatum is recorded for all the bordering counties, except E. Gloucestershire.

[**CICUTA VIROSA**, Linn. Sp. Pl. 255 (1753). *Water Hemlock, Cow-bane*.

Top. Bot. 188. Syme, E. B. iv. 97, t. 571. Nyman, 304. Fl. Oxf. 137.

Error. This plant is included in Britten's *Contributions*, 1871, on the faith of a record in the *Wellington Coll. Nat. Hist. Rep*. There is little doubt that a mistake in identification was made by the recorder. The record in the *Flora of Oxfordshire*, made by the Rev. E. Fox, is, I have since discovered, also erroneous. It has not been reported with certainty from any bordering county.]

CARUM, Linn. Gen. n. 327 (*Carvi*, Tournefort, Inst. t. 160).

****C. PETROSELINUM**, Benth. & Hook. fil. Gen. Pl. i. 891 (1867). *Parsley*.

Apium Petroselinum, Linn. Sp. Pl. 264 (1753). *Petroselinum sativum*, Hoffm. Umbell. 177.

Cyb. Brit. i. 430. Syme, E. B. iv. 103, t. 576. Nyman, 309. Fl. Oxf. 141.

Alien. Walls, waste places, rare. B. or P. July-August.

First record. *Petroselinum sativum*, Mr. W. Pamplin in *Phyt.* v. 155, 1854.

1. **Isis.** Near Cumnor, *Boswell*.
 2. **Ock.** Shippon. Didcot.
 3. **Pang.** Streatley, *Pamplin*. Pangbourn, by the railway.
 4. **Kenet.** Newbury. Reading Abbey.
 5. **Loddon.** Old walls near the Tower, Cranbourn Chase, *Bolton King*.
- Var. **CRISPUM** (sub. *Petroselinum*), DC., Prod. iv. 102, occurred as a garden outcast at Marcham. It is the form more usually cultivated.
- The Parsley occurs as a garden escape in all the bordering counties.

****C. CARVI**, Linn. Sp. Pl. 263 (1753).

Caraway.

- Carvi*, *Lonicerus*. *Apium Carvi*, Crantz, Stirp. Austr. ed. 1, iii. 110.
Comp. Cyb. Br. 519. Syme, E. B. iv. 111, t. 582. Nyman, 307. Fl. Oxf. 140.
Casual. Waste places, and rarely in meadows. Very rare. Not native.
A. July.

First record. 'Tell him (Mr. Brokesby) that Mr. Bobart has found Carawaies in a close near Audley [? Early], which is not far from Reading. 'Tis a good Distance from any Garden, and he took it for certain to be wild,' *Hearne, Collections* (ed. Doble, 1884), May 21-4, 1711, 165.

1. **Isis.** [In a meadow off the Botley Road, *Boswell*, but the locality is in Oxfordshire.]
2. **Ock.** By the railway near Didcot.
4. **Kenet.** Burghfield meadows, and sporadically elsewhere, *Tufnail*.

I have not been able with certainty to identify Mr. Bobart's locality. At Botley the plants owed their origin to some sweepings from a public-house being scattered in the field. It was then customary to have a tray of Caraways on the public-house bar for drinkers to chew in order to disguise the smell of liquors.

C. Carvi has no claim to be considered native in Berkshire, or in any bordering county.

[**C. BULBOCASTANUM**, Koch, in Nov. Act. Nat. Cur. xii. (1824) 121. *Bunium Bulbocastanum*, Linn. Sp. Pl. 243 (1753). Is reported from Bucks, and as a casual? in Hants.]

C. segetum, Benth. & Hook. fil. Gen. Pl. i. 890 (1867).

Corn Parsley, Honewort.

Sison segetum, Linn. Sp. Pl. 252. *Petroselinum segetum*, Koch, Nov. Act. Cur. xii. i. (1824) 128.

Top. Bot. 189. Syme, E. B. iv. 105, t. 577. Nyman, 309. Fl. Oxf. 140.
Native. Glareal. Dry sunny hedge-banks. Very local. A. or B.
July-September.

First record. *Sison segetum*. Hedges near Eton but rare, Mr. Gotobed in *Botanist's Guide*, 1805.

1. **Isis.** Near Botley, on the road to Eynsham, *Baxt. Phaen. Bot.* n. 360. Cumnor, *Boswell*. Near Bablock Hythe.
2. **Ock.** Sunningwell, *Garnsey*. West side of Boar's Hill. Dry Sandford. Plentiful between Dry Sandford and Wootton.
3. **Pang.** Near Englefield. Between Pangbourn and Tidmarsh. Cholsey Lane.
4. **Kenet.** In many places [near Elcot], *Reeks in Britt. Contr.* Between Cold Ash and Shaw.
5. **Loddon.** Hedges near Eton, *Gotobed*. [The locality may be in

Bucks.] Wargrave, *Melville in Britt. Contr.* Near the 'Dreadnought,' Sonning, also in Sonning Cutting, Twynail. Near White Waltham.

Carum segetum occurs in all the bordering counties.

SISON, Linn. Gen. n. 311.

S. Amomum, Linn. Sp. Pl. 252 (1753). *Stone Parsley.*

Top. Bot. 190. Syme, E. B. iv. 106, t. 578. Nyman, 305. Fl. Oxf. 138. Native. Septal. Hedge-banks, on clayey or calcareous soil. Locally abundant. B. July–October.

First record. Sunninghill, *Sir Joseph Banks in Herb. Brit. Mus.* about 1773. *Sison amomum*, Dr. Noehden, *Mavor's Agr. Berks*, 1809.

Sison Amomum, which occurs in all the bordering counties, is a common plant of Berkshire, so that its localities are not enumerated.

SIUM, Linn. Gen. n. 310 (Tournefort, Inst. t. 162).

S. latifolium, Linn. Sp. Pl. 251 (1753), and of C. Bauhin. *Great Water Parsnep.*

Top. Bot. 192. Syme, E. B. iv. 117, t. 587. Nyman, 304. Fl. Oxf. 137. Native. Paludal. River-, brook-, and canal-sides. Locally common.

It occurs at intervals on the banks of the Thames, from its entrance into the county to its leaving it for Surrey. P. July–September.

First record. *Pastinaca aquatica latifolia*. At Oxford, July 5, 1622, J. Goodyer, MS. Also *Sium majus latifolium*, Ger. By Redding, [How's] *Phyt. Brit.* 1650.

1. **Isis**. Ditches about Radcot Bridge, *Fardon in Bot. Guide*, 1805. (This record is transferred to *S. erectum* by error in *Mavor's Agr. Berks.*) Not uncommon near Oxford, *Baxter in Pert. Midl. Fl.* Near Buckland. Appleton. Bablock Hythe. Under Wytham Woods, &c.
2. **Ock**. Ditches below Blewbury Common, *Lousley in Russell's Cat.* By the Canal near Wantage. Uffington. Marcham. Abingdon, very luxuriant. By the Thames near Oxford. Kennington. Radley. Culham. Sutton Courtney. Wittenham. Wallingford, &c.
3. **Pang**. Moulsoford. Pangbourn. Tilehurst. Reading.
4. **Kennet**. Northcroft, *Russell's Catalogue*. (Not seen by me.)
5. **Loddon**. About Reading, [How's] *Phyt. Brit.* In the largest pond at foot of Cookham Down, *Mil.* Ditches by the Thames above Maidenhead, *J. Woods in Winch add. to New Bot. Guide*. Wargrave. Sonning, *Melville in Britt. Contr.* Aston, &c., Stanton. Windsor, Everett. Near Eton, *Gotobed in Bot. Guide*. Near Boulney and Shiplake, very fine.

The submerged leaves are of large size and often very beautifully dissected; it was probably this state of the plant which was recorded as '*Sium medium foliis elegantissime dissectis*. In some ditches about Oxford,' in Merrett's *Pinax*, 1666. I have seen these finely cut submerged leaves as early as January.

A form of the plant has been gathered near Port Meadow and in the large meadow at Abingdon, in which the bracteoles were so much developed as to be foliaceous, while the segments of the stem leaves were much narrower than usual and much more dentately cut. Another form was seen under Wytham woods, with very narrow leaf segments; the plant before flowering much resembled *Cicuta virosa*; it is the var. *ANGUSTATUM*, Doell, Fl. Bad. 1007 (1857).

Sium latifolium occurs in all the bordering counties.

S. erectum, Huds. Fl. Angl. 103 (1762). *Water Parsnep*.

S. angustifolium, Linn. Sp. Pl. 1672 (1762). *Berula angustifolia*, Mert. & Koch, in Deutsch. Fl. 2, 433.

Top. Bot. 193. Syme, E. B. iv. 118, t. 588. Nyman, 304. Fl. Oxf. 138. Native. Paludal. Ditches, streams, &c. Rather common and widely distributed, but not so common near Oxford as the preceding species. P. July–August.

First record. *S. angustifolium*, South Hinksey, Mr. Baxter, MSS. 1825. Included by Mr. T. B. Flower in *Robertson's Env. of Reading*, 1843, but without locality.

1. **Isis**. Cumnor. Appleton. Near Lechlade, &c.
2. **Ock**. In a ditch near the footpath leading from the Tollgate beyond Folly Bridge to South Hinksey, Baxter. Marcham, Walker. Shippon. Abingdon. Cothill. Uffington. Wantage. Lockinge. Hagborne. Meadow near Radley.
3. **Pang**. Bradfield. Pangbourn. Moultsford.
4. **Kennet**. Mortimer, Tufnail. Beenham. Theale. Newbury.
5. **Loddon**. Shiplake, Stanton. Wargrave, Melvill. Near Windsor, Bolton King. Jouldern's Ford. Coleman's Moor. Twyford. Ruscombe. Shurlock Row. Early. Wokingham. Waltham. Wellington College.

S. erectum occurs in all the bordering counties.

AEGOPODIUM, Linn. Gen. n. 335.

Ae. Podagraria, Linn. Sp. Pl. 265 (1753). *Gout Weed*, *Herb Gerard*, *Ground Elder*.

Podagraria, Rivinus, Pent. Irr. 47. *Aegopodium*, Tabernaemont.

Top. Bot. 191. Syme, E. B. iv. 108, t. 580. Nyman, 305. Fl. Oxf. 139. Denizen or native. Septal. Hedges, waysides, and spinneys, near

villages. Rather common and generally distributed. P. May-August.

First record. *Ae. podagraria*, Dr. Noehden, *Mavor's Agr. Berks*, 1809. With *Puccinia Aegopodii*, Grev., on it about Oxford, *Baxter, Phaen. Bot. n.* 151.

1. *Isis*. Wytham. Buckland. Faringdon. Buscot, &c.
2. *Ock*. Blewbury, *Lousley in Russell's Cat.* Denchworth, *Wait*. Radley. Sunningwell. Kennington. Tubney. Besilsleigh. Kingston Lisle. Pusey. Kingston Bagpuze, &c.
3. *Pang*. Tilehurst, *Tufnail*. Ashampstead. Bradfield. Bucklebury. Near Cold Ash. Pangbourn. Hermitage.
4. *Kennet*. Ilsley, *Hewett in Herb. Brit. Mus.* 1839. Newbury, *Weaver*. Woolhampton. Hampstead Marshall. Calcot.
5. *Loddon*. Well. Coll. List, 1894. Park Place. Aston Lane, *Stanton*. Shinfield, *Tufnail*. Hurst. Bearwood. Arborfield. Crowthorn. Long Moor. Swallowfield. Near Maidenhead. Frogmore. Near Crazey Hill. Ruscombe.

Only a few of its localities are included in the above enumeration. The deep running, brittle roots, the least fragment of which will grow, render it very difficult of extirpation.

Aegopodium Podagraria is found in all the bordering counties.

PIMPINELLA, Linn. Gen. n. 328 (*Tragoselinum*, Tournefort, Inst. t. 328).

P. Saxifraga, Linn. Sp. Pl. 263, a. b. (1753). *Burnet Saxifrage*.

Top. Bot. 192. Syme, E. B. iv. 115, t. 585. Nyman, 306. Fl. Oxf. 140. Native. Pascual. Dry pastures, chalk downs, &c. Common and generally distributed, especially abundant on the Oolite and Chalk, but scarcer in the heathy districts. P. July-September.

First record. *P. saxifraga*, Dr. Noehden, *Mavor's Agr. Berks*, 1809.

Var. *DISSECTA*, With. Bot. Arr. 312 (1796) = *P. dissecta*, Retz. Obs. iii. 30 (1783), with all the leaves cut into narrow segments, is not uncommon as at Wargrave (*Melville*), Wootton, Wantage, Waltham, Uffington, Culham, &c.

Var. *POTERIOFOLIA*, Wallr. Sched. Pl. Crit. 123. Baxt. Phaen. Bot. n. 411, which has the divisions of the radical leaves rounded and not deeply cut, is also not rare, having been seen at Besilsleigh, Buckland, Letcombe, Pangbourn, Frilsham, &c.

Our commoner plant is intermediate in character.

P. Saxifraga is found in all the bordering counties.

P. major, Huds. Fl. Angl. 110 (1762). *Great Burnet Saxifrage*.

P. magna, Linn. Mantissa, ii. 217 (1771). *P. Saxifraga*, var. *major*, Linn. Sp. Pl. 264 (1753).

Top. Bot. 192. Syme, E. B. iv. 116, 1586. Nyman, 306. Fl. Oxf. 139-40. Native. Sylvestral. Woods and thickets. Very local. P. July-August.

First record. *P. magna*, Ilsley, the author in the *Rep. of Bot. Record Club*, 98, 1884.

1. **Isis.** Between Botley and Cumnor. .

3. **Pang.** Near Ilsley. Ashridge Wood.

4. **Kennet.** Burghfield.

5. **Loddon.** Wargrave, Melvill.

Near Cumnor it occurred as the var. *rosea* = *P. magna*, var. *rosea*, Koch, Syn. 287 (1837).

P. major evinces a preference for clayey soils. It is recorded for all the bordering counties, but its occurrence in Hants is very doubtful.

CONOPODIUM, Koch, in Nov. Act. Nat. Cur. xii. (1824), 118.

C. denudatum, Koch, l.c. *Pig Nut*, *Earth Nut*.

Bunium Bulbocastanum, Huds. Fl. Angl. 122 (not of Linn.). *B. flexuosum*, Stokes in With. Bot. Arr. ed. 2, i. 276.

Top. Bot. 191. Syme, E. B. iv. 113, t. 584. Nyman, 303. Fl. Oxf. 137. Native. Sylvestral. Woods, thickets, hedges, heaths, &c. Common and generally distributed, more frequent in friable soil. P. April-July.

First record. *Earth Chesnut*. It grows in Merley Wood and Chylsey Wood, MS. in Lyte's Herball, 1660. *Bunium flexuosum*, Dr. Noehden, Mavor's Agr. Berks, 1809. *Conopodium flexuosum*, plentiful in Hampstead Norris Woods, Mr. J. Lousley in Russell's Cat. 1839.

C. denudatum occurs in all the bordering counties.

[**MYRRHIS ODORATA**, Scop. Fl. Carn. ed. 2, i. 207 (1772). *Scandix odorata*, Linn. Sp. Pl. 257. *Odorata*, Rivinus, Pent. Irr. Occurs in Oxfordshire and Surrey, but probably only as a relic of cultivation.]

CHAEROPHYLLUM, Linn. Gen. n. 320.

C. temulum, Linn. Sp. Pl. 258 (1753). *Rough Chervil*, *Wild Chervil*.

C. temulentum, Sm. E. B. t. 1521. *Myrrhis temulenta*, Sm. Eng. Fl. ii. 51.

Top. Bot. 206. Syme, E. B. iv. 169, t. 625. Nyman, 300. Fl. Oxf. 136. Native. Septal. Thickets, hedge-banks, &c. Very common and generally distributed. P. (? B.) May-July.

First record. *C. temulum*. In hedges, common, Mavor's Agr. Berks, 1809.

This and *Conium maculatum* are the only two British plants belonging to the order which have spotted stems, but this is a hairy, while *Conium* is a glabrous plant.

Chaerophyllum temulum is found in all the bordering counties.

SCANDIX, Linn. Gen. n. 319 (Tournefort, Inst. t. 173).

S. Pecten-Veneris, Linn. Sp. Pl. 256 (1753). *Shepherd's Needle*, *Venus' Comb*.

Top. Bot. 205. Syme, E. B. iv. 171, t. 627. Nyman, 302. Fl. Oxf. 137. Colonist. Agrestal. Cornfields. Very common and generally distributed. A. April-October.

First record. Cornfields, too frequent, *Mavor's Agr. Berks*, 1809.

Everywhere about Marlow, Mr. G. G. Mill, *Phyt.* i. 986, 1843.

It occurs on the top of Walbury Camp, 957 feet high, on Gibbet Hill, and is extremely frequent on the Compton Downs.

The primary leaves are simple and linear, rather closely resembling the leaves of *Myosurus minimus*.

Scandix occurs commonly in all the bordering counties.

****S. PINNATIFIDA**, Vent. Jard. Cels. t. 14 (1800).

Nyman, 302. Reichb. Ic. Fl. Germ. et Helv. vol. xxi. t. 206, f. 2247.

Casual. Rubbish heaps. A. July-August.

A native of Spain and the Taurus; found on rubbish heaps at Grandpont, near Oxford, in 1892.

CEREFOLIUM, Link in Usteri. Delect. Opusc. ii. (1793) 114.

Anthriscus, Bernh. Syst. Verz. Erf. 113 (1800).

C. Anthriscus, Beck, Fl. Nieder Oesterreich. 632 (1893).

Anthriscus vulgaris, Bernh. l. c. 168. *Scandix Anthriscus*, Linn. Sp. Pl. 257.

Top. Bot. 205. Syme, E. B. iv. 166, t. 622. Nyman, 301. Fl. Oxf. 136.

Native. Viatical, &c. Waysides, walls, dry hedge-banks, &c. Local and rather rare. A. April-June.

First record. *Anthriscus vulgaris*, from the neighbourhood of Marlow, without a definite locality, by Mr. G. G. Mill in *Phyt.* i. 987, 1843.

2. **Ock**. Very rare, about three miles from Kingston Bagpuze, *Boswell in Britt. Contr.* Marcham, *Walker*. Not unfrequent about Cothill, Marcham, and Frilford, *Fl. Oxf.* Near Shippon. Canal-side near Abingdon. Besilsleigh. Sandford. Near Abingdon.

4. **Kennet**. Near Wash Common, *Jackson*. Between Thatcham and Newbury. About Reading Abbey. Near Southcote in a very luxuriant condition.

5. **Loddon**. Near Marlow, *Mill*. [The locality may have been in Bucks.] Saunders' Lane, Wokingham, *Salmon*. By Early Court Park, *Tufnail*.

C. *Anthriscus*, a very elegant plant, is quite local in the county, and appears to prefer dry sandy soil. It occurs in all the bordering counties.

C. sylvestre, Bess. Prim. Fl. Galic. i. 218 (1819). *Keck*, *Common Corn Parsley*, *Wild Cicely*.

Anthriscus sylvestris, Hoffm. Umb. ed. 2, 40 (1814). *Chaerophyllum sylvestre*, Linn. Sp. Pl. 251 (1753).

Top. Bot. 206. Syme, E. B. iv. 168, t. 624. Nyman, 301. Fl. Oxf. 136. Native. Sylvestral, &c. Hedges, fields, shady places, thickets, &c.

Abundant, and generally distributed in rich moist soil. The commonest species of the order in the lower parts of the country and the earliest to flower. P. March-May.

First record. *Chaerophyllum sylvestre*, Mavor's Agr. Berks, 1809.

This is one of our conspicuous woodland and meadow-side plants, and is often painted by artists in pictures of the Thames valley. Mr. G. D. Leslie figures it on p. 138 of *Our River*.

It occurs in all the bordering counties.

****C. SATIVUM**, Bess. Prim. Fl. Galic. i. 219 (1819). *Common Chervil*.

C. sylvestre, Bess. in Index Kewensis. *C. Cerefolium*.

Scandix Cerefolium, Linn. Sp. Pl. 257 (1753). *Anthriscus Cerefolium*, Hoffm.

Umb. 41. *Chaerophyllum sativum*, Lam. Fl. Fr. iii. 438.

Comp. Cyb. Br. 520. Syme, E. B. iv. 167, t. 623. Nyman, 301. Fl. Oxf. 136.

Casual. Waste ground. Rare. A. May.

First record. *Scandix cerefolium*, Windsor, Mr. Gotobed, Bot. Guide, 1805.

5. Loddon. Hedge near Windsor, probably from a garden, Gotobed, l. c.

It has occurred in Oxfordshire and Hampshire.

FOENICULUM, Adans. Fam. ii. 101 (Tournefort, Inst. t. 164).

***F. VULGARE**, Miller, Gard. Dict. ed. 8 (1768). *Fennel*.

F. capillaceum, Gilib. Fl. Lituan. ii. 40 (1782). *F. officinale*, All. Fl. Ped. ii. 25 (1788). *F. Foeniculum*, Karst. Deutsch. Fl. 837 (1880-3). *Anethum Foeniculum*, Linn. Sp. Pl. 263 (1753).

Comp. Cyb. Br. 193. Syme, E. B. iv. 133, t. 601. Nyman, 292. Fl. Oxf. 133. Alien. Waste places, railway-banks. Rare. P. June-August.

First record. *Anethum foeniculum*, Dr. Noehden, Mavor's Agr. Berks, 1809. Near Sandhurst, Buxt. Phaen. Bot. n. 176 (1837).

2. Ock. Waste ground near Abingdon Racecourse, evidently of garden origin.

4. Kennet. Abundant on the railway embankment, Newbury, where it is well-established and was first observed by Mr. Reeks.

5. Loddon. Abundant on the banks of the Loddon [Blackwater] near Sandhurst, Miss Delamotte in Buxt. l. c. Waste ground near Windsor. Railway-side near Maidenhead.

Foeniculum occurs as an escape from cultivation in all the bordering counties.

OENANTHE, Linn. Gen. n. 314 (Tournefort, Inst. t. 166).

Oe. fistulosa, Linn. Sp. Pl. 254 (1753). *Water Dropwort*.

Top. Bot. 194. Syme, E. B. iv. 124, t. 593. Nyman, 298. Fl. Oxf. 135.

Native. Paludal. Wet ditches, marshy fields, pools. Rather local. P. June-September.

First record. *Oenanthe aquatica minor*, Park. In the ditches about Medley and Binsey Common, and almost everywhere about Oxford, Plot, Nat. Hist. Oxf. 1677. See *Oe. fistulosa*, Mavor's Agr. Berks, 1809.

1. **Isis.** Buckland Park. Marsh in Tubney Wood, *Boswell*. Wytham meadows. In the meadows near Eynsham. Near Buscot.
2. **Ock.** Marcham, *Walker*. Radley, *Fl. Oxf.* Uffington. Abingdon meadows, common. Wantage. Kennington.
3. **Pang.** Pangbourn. Moulsoford. Near Tilehurst.
4. **Kennet.** Wash Water, *Russell's Cat.* 1839. Burghfield meadows, *Tufnail*. Greenham Common. Southcote. Catmore. Beenham.
5. **Loddon.** Ponds at the foot of Cookham Down, *Mill*. Sandhurst. Penny. Culham. Aston. Hurley, *Stanton*. Wargrave, *Melville*. Sonning, *Tufnail*. Near White Waltham. Coleman's Moor. Windsor Park. Ruscombe. Twyford. Old Windsor. Bisham.

The plant is rather variable in habit; it occurs near Abingdon as the large form (var. *luxurians*, Crépin, Notes Pl. Rares. de la Belg. fasc. iv. 1864). It is fond of still or stagnant water, and is usually associated with *Hydrocharis*, *Lemna*, *Callitriche obtusangula*, and *Stellaria palustris*, and is more frequent in the county than the foregoing records show.

Oe. fistulosa occurs in all the bordering counties.

Oe. silaifolia, Bieb. Fl. Taur. Cauc. iii. 232 (1808). *Sulphur Wort*.

Oe. peucedanifolia, Pollich, Hist. Pl. Palat. i. 289 (1776). *Oe. Smithii*, H. C. Wats. in Phyt. ii. (1845) 14.

Top. Bot. 196. Syme, E. B. iv. 126, t. 595. Nyman, 298. Fl. Ox. 135. Native. Pratal. Wet, low-lying meadows. Local. P. June-July. First record. *Oe. peucedanifolia*. Several places about Oxford, Dr. Sibthorp in E. B. t. 348, 1796. Near Eton, Mr. Gotobed in *Bot. Guide*, 1805.

1. **Isis.** Eynsham meadows. Wytham meadows.
2. **Ock.** Thames meadows, *Dyer*. Iffley fields. Kennington meadows. Near Sandford.
3. **Pang.** Near Pangbourn, *Newbould*.
5. **Loddon.** Moist meadows near Eton, *Gotobed*.

In the *Nouvelle Flore de la Normandie* M. Corbière separates *Oe. peucedanifolia* from *Oe. silaifolia*, the latter being distinguished by its glaucescent tint, and by the ripe fruit being sub-tetragonous-cylindric. In the former the fruits are narrowed above and below, and the plant is not glaucescent. They are treated as synonymous in *Index Kewensis*.

Oe. silaifolia is recorded for all the bordering counties, but recent confirmation of its occurrence in Bucks and Hants is desirable.

Oe. Lachenalii, Gmel. Fl. Bad. i. 678 (1805).

Oe. pimpinelloides, Sm. E. B. t. 347, not of Linn.

Top. Bot. 195. Syme, E. B. iv. 127, t. 596. Nyman, 298. Fl. Ox. 135. Native. Uliginous. Rough meadows, marshes, and bogs. Very local.

P. July-September.

First record. Frilford, Mr. F. Walker in *Journ. Bot.* 133, 1873. See also the author in *Rep. of Bot. Rec. Club* and *Rep. Bot. Exch. Club*, 1881.

1. *Isis*. Near the junction of the Cole and Thames.
2. *Ock*. Moist ground near Frilford Heath, very scarce, *Walker*; a specimen is in *Herb. Brit. Mus.* Marcham Meadow. Cothill. Marsh between Shippon and Cothill. Between Marcham and Noah's Ark.

It is recorded for all the bordering counties except Bucks, as I have seen it in Gloucestershire, near Lechlade.

[*Oe. pimpinelloides*, Linn. Sp. Pl. 254 (1753). Syme, E. B. iv. 125, t. 594. Is recorded for the counties of Hants, Wilts, and Gloucestershire.]

Oe. crocata, Linn. Sp. Pl. 254 (1753). *Hemlock Water Dropwort*.

Top. Bot. 197. Syme, E. B. iv. 128, t. 597. Nyman, 297. Fl. Oxf. 134. Native. Paludal. Sides of ditches, streams, and ponds. Absent from the north, local in the central portion, but abundant in the south-western part of the county. P. May-August.

First record. *Oenanthe maxima*. Ad ripam Tamesis, *Morison, Plant. Umbellif.* 20, 1672. Also as *Oenanthe maxima succo viroso, Cicutae facie*, Lobel. In salicetis circa Windsoriam (Bobart), *Morison, Hist. Ox.* iii. 288, 1699. A MS. note of about the date of 1680 in a copy of *Ray's Catalogue* records it from near Coleman's Moor. See *Phyt.* iv. 746, 1852.

2. *Ock*. Absent from the greater part of the district, being only known from one locality between Blewbury and Hagborne, where it was detected by *Miss Fry* in 1894.
3. *Pang*. Sulham. Pangbourn. Purley. Standford Dingley. Near Englefield. Between Bradfield and Tidmarsh.
4. *Kennet*. Thatcham, &c., *Russell's Cat.* Speen, *Herb. Cecil.* Theale. Shefford. Bagnor. Southcote. Bucklebury. Beenham. It is too frequent on the south side of the Kennet to require localities.
5. *Loddon*. Near Windsor, *Bobart*. Coleman's Moor, *MS. in Ray*. Finchampstead, *Penny*. Sonning, *Tufnail*. Wargrave. Hurst, *Melvill*. Common by the Thames near Henley, *Stanton*. Ponds at foot of Cookham Down, *Mill*. Marlow, *Chandler, Herb. Brit. Mus.* Shurlock Row. White Waltham. Ruscombe. Shottesbrooke. Very abundant in this district.

Its distribution in Berkshire is very peculiar, being absent from the Upper Thames and its tributaries from Lechlade as far as to Wallingford. Neither is it found by the Ock stream, although present in a single locality at Hagborne in the Ock district. On the north side of the Kennet it is local, but extends up the Lambourn nearly to the village of that name. On the south side of the Kennet and through

the greater portion of the Loddon district it is too abundant to need the mention of localities. All the bordering counties are recorded for it, but it is very rare and local in Oxfordshire, being practically confined to the county near Caversham, and is not found in E. Gloucestershire.

Oe. Phellandrium, Lam. Fl. Fr. iii. 432 (1778). *Water Horsebane*, *Water Hemlock*.

Oe. aquaticum, Poir in Lam. Enc. Méth. iv. 530 (1797). *Phellandrium aquaticum*, Linn. Sp. Pl. 255 (1753). *Phellandrium*, Tournefort.

Top. Bot. 198. Syme, E. B. iv. 130, t. 598. Nyman, 297. Fl. Oxf. 133. Native. Uliginal. In pools and ditches of stagnant water and in marshes. Very local. Curiously rare or absent from the Isis and Ock districts. P. June–August.

First record. *P. aquaticum*, Water Hemlock. Rivers and ditches, *Mavor's Agr. Berks*, 1809, but this is probably a mistake for the next species. It is definitely recorded by Mr. G. G. Mill, in *Phyt.* i. 987, 1843.

3. Pang. In a pond between Tilehurst and Calcot Park.

4. Kennet. In Southcote Moat.

5. Loddon. Ponds at the foot of Cookham Down, Mill, l. c. Bulmarsh. White Knight's Lake, *Tufnail*. Near Wellington College, Penny. Near Windsor, *Dyer in Phyt.* (1862–3) 528. Wargrave, in Holme's Lane, *Melvil*. Ruscombe. Broadwater. Waltham. Near Shottesbrooke. Abundant on Coleman's Moor. Hurst. Winkfield. Abundant in a wood between Shurlock Row and Shottesbrooke. Near Henley.

Rather frequent on the London Clay in this district.

Oe. Phellandrium is recorded for all the bordering counties except Wilts.

Oe. fluviatilis, Coleman, in Ann. and Mag. Nat. Hist. xiii. (1844) 188.

Top. Bot. 196. Syme, E. B. iv. 131, t. 599. Nyman, 297. Fl. Oxf. 134.

Native. Lacustral. Rivers, abundant in shallow places in all our larger streams. P. July–September.

First record, and probably the first description of the species, *Cicutaria palustris tenuifolia*, C. B. P. In rivulis et aquis caenosis, qualibus gaudet *Sium* de quo supra egimus, frequens nascitur haec *Cicuta*. Folia tenuia plurifariam divisa aquis innatant, et non semper caulescere planta observatur. Caulis pollicaris et brachialis crassitudinis, geniculatus supra aquam ad cubitalem et bicubitalem altitudinem se erigit; ad nodos *folia Cicutae*, jam ante explicatarum foliis breviora, alternatim nascuntur, glabra et viridia (*Bobart*), *Morison, Hist. Ox.* iii. 291, 1699. *Oe. fluviatilis*, abundant in Thames and tributaries, Mr. H. Boswell, in *Phyt.* iv. n. s. 100, 1860.

[The specimen of submerged leaves labelled *Oe. fluviatilis* in *Herb.*

Brit. Mus. by Mr. W. T. Dyer from the Thames near Oxford is *Sium latifolium*.]

Oe. fluviatilis, which is too abundant and generally distributed in our larger streams to need the enumeration of localities, occurs in all the bordering counties, in Bucks, at Denshanger, &c., and near Lechlade in E. Gloucestershire.

AETHUSA, Linn. Gen. n. 317.

Ae. Cynapium, Linn. Sp. Pl. 256 (1753). *Fool's Parsley*.

Cynapium, Rivinus, Pent. Irr. 76. *Ethusa*, Linn. Syst. 1735.

Top. Bot. 199. Syme, E. B. iv. 132, t. 600. Nyman, 297. Fl. Oxf. 133. Native. Agrestal. Cultivated ground. Abundant and generally distributed, occurring as a garden weed in Reading, &c. A. May-October.

First record. *Ae. cynapium*, *Mavor's Agr. Berks*, 1809.

It occurs in two marked forms, i. e. var. *HOERTENSIS*, Boenn. Prod. Fl. Monast. 84, growing in garden ground and in rich soil, which in its extreme state is var. *Ae. elata*, Friedl., and is sometimes a yard in height; and var. *AGRESTIS*, Wallr. Sched. Pl. Crit. (1822) 119 = var. *pygmaea*, Koch, Syn. Fl. Germ. 293 (1837) = *Ae. segetalis*, Boenn. l. c., and is locally common in stubble fields and among corn crops. The latter is a small form usually less than four inches high, with the involucels very attenuated. I have seen it at Cumnor, Buscot, Wootton, South Hinksey, Lockinge, Wantage, Appleford, Wittenham, Yattendon, Bradfield, Theale, Newbury, Maidenhead, Twyford, Binfield, Finchampstead, Windsor, &c.

Arethusa Cynapium is found plentifully in all the bordering counties.

SILAUS, Bernh. Syst. Verz. Erfurt (1800), 116.

S. flavescens, Bernh. l. c. 174 (1800). *Pepper Saxifrage*.

S. pratensis, Bess. bei Sprengl. in Schult. Syst. vi. 36 (1820). *S. Silaus*, Karst. *Peucedanum Silaus*, Linn. Sp. Pl. 246 (1753).

Top. Bot. 200. Syme, E. B. iv. 139, t. 604. Nyman, 292. Fl. Oxf. 133. Native. Pascual. Roadsides, meadows, pastures, &c. Rather common and widely distributed, more frequent in stiff soils; absent from the heathy tracts and from some portions of the Chalk downs. P. June-October.

First record. *Peucedanum silaus*, Meadow Sulphur Wort, Dr. Noehden, *Mavor's Agr. Berks*, 1809.

1. *Isis*. Wytham. Eynsham and Cumnor meadows. Appleton. Buscot. Faringdon. Shrivenham. Coleshill. Bablock Hythe, &c.

2. *Ock*. Childswell Farm, *Boswell*. Marcham, *Walker*. Uffington,

- . *Bellamy*. Shippon. Frilford, *Fl. Oxf.* Abingdon. Wittenham. Steventon. Lockinge. Garford. Challow. Sparsholt. Didcot, &c.
3. *Pang*. Moulsoford. Bradfield. Yattendon. Pangbourn. Hampstead Norris, &c.
4. *Kennet*. Shaw, *Weaver*. Burghfield meadows, *Tufnail*. Greenham. Theale. Beenham. Hungerford. Lambourn. W. Ilsley. Kintbury. Shefford.
5. *Loddon*. Meadows about Cookham and under Bisham Wood, *Mill*. Wargrave, *Britt. Contr.* Bowsey and Crazey Hill, *Stanton*. Windsor, *Bolton King*. Wargrave. Near Sandford Mill, *Melvill*. Waltham. Whistley Green. Loddon Bridge. Bearwood. Bray. Wokingham. Windsor, &c.

*Silau*s is found in all the bordering counties.

ANGELICA, Linn. Gen. n. 309.

A. sylvestris, Linn. Sp. Pl. 251 (1753), and of Fuchs. *Angelica*.

Top. Bot. 201. Syme, E. B. iv. 145, t. 607. Nyman, 283. *Fl. Oxf.* 131.

Native. Sylvestral. Damp woods, thickets, hedgerows, stream-sides, and sometimes in marshy meadows. Common and generally distributed, but less frequent in the upland portion of the county. P. July–August.

First record. Sunninghill, *Sir Joseph Banks*, 1780, in *Herb. Brit. Mus.*

A. sylvestris, Dr. Noehden, *Mavor's Agr. Berks*, 1809. With *Sphaeria Dolium*, Pers., *S. herbarum*, Pers., and *Phacidium Patella*, Tode., on it about Oxford, the latter in Bagley Wood, *Baxt. Phaen. Bot.* 491, 1843.

In the Kennet meadows near Theale a small form was found which was more pubescent than the type.

Angelica is one of the handsomest members of its order, and occurs in all the bordering counties.

PEUCEDANUM, Linn. Gen. n. 302 (Tournefort, Inst. t. 169).

[**P. PALUSTRE**, Moench, *Meth.* 82 (1784). *Selinum palustre*, Linn. Sp. Pl. 244 (1753).

Occurs by a pond near Chalfont St. Peter's, Bucks, where it was discovered by the Rev. F. H. Woods. See a note by the author in *Journ. Bot.* (1891) 308.]

[**P. OFFICINALE**, Linn. Sp. Pl. 245 (1753). *Common Sulphur Wort*.

Syme, E. B. iv. 148, t. 609.

Error. Recorded by Dr. Noehden in *Mavor's Agr. Berks*, 1809. Perhaps confused with *Silau*s. Dr. Mavor had little critical knowledge of plants; his list was made up from records given by Mr. Bicheno and Dr. Noehden, who probably used, in some cases, different names for the same plant, and as Dr. Mavor was not sufficiently acquainted with botanical nomenclature, he was thus led into error.]

P. sativum, Benth. & Hook. fl. Gen. Pl. i. 920 (1867). *Wild Parsnep*.

Pastinaca sativa, Linn. Sp. Pl. 262 (1753), and of Tragus. *Peucedanum*

Pastinaca, Baill. Hist. Pl. vii. 96.

Top. Bot. 201. Syme, E. B. iv. 151, t. 612. Nyman, 289. Fl. Oxf. 131. Native. Pascual, viatical. Roadsides, field-borders, &c. Locally abundant. A. or B. May-August.

First record. *Pastinaca sativa*, Cholsey, Prof. Henslow in 1835. Almost everywhere about Oxford, Baxt. Phaen. Bot. n. 172, 1837.

The Parsnep is too common and widely distributed in the county to need an enumeration of localities. It attains its maximum of frequency on the Oolite, Clays, and Chalk. By the roadsides on these formations it is a conspicuous feature, the bright yellow flowers rendering it especially noticeable. At Burghfield plants eight feet high were seen in 1887. Absent from a considerable area of the heathy districts.

On rubbish heaps stray plants of the cultivated form *P. sativum*, var. DULCE, occur.

P. sativum is found in all the bordering counties.

HERACLEUM, Linn. Gen. n. 307 (*Sphondylium*, Tourn. Inst. t. 170).

H. Sphondylium, Linn. Sp. Pl. 249 (1753). Hogweed, Cow Parsley, Cow Parsnep. *Sphondylium vulgare*, Park. 953.

Top. Bot. 202. Syme, E. B. iv. 154, t. 613. Nyman, 290. Fl. Oxf. 132. Native. Septal. Hedgerows, thickets, and pastures. Abundant and generally distributed. P. March-August.

First record. *H. sphondylium*, Dr. Noehden, Mavor's Agr. Berks, 1809. With *Puccinia Heraclei*, Grev., and *Dothidea Heraclei*, Grev., on it about Oxford in 1825, Baxt. Phaen. Bot. 130, 1831.

Var. **ANGUSTIFOLIUM**, Huds. Fl. Angl. 117 (1778), has been observed in several localities, as at Besilsleigh, Ashampstead, Inkpen, Stubbington's Heath, Snelsmore, &c.

Miss M. Niven has observed at Carswell a curious form in which the involuclers are so much enlarged as to become foliaceous appendages an inch in length. *Heracleum* is sometimes found with dull reddish flowers—*f. rosea*. In the dry seasons of 1893-4 and 6 the narrower-leaved form was more frequent than I had previously noticed.

Heracleum occurs plentifully in all the bordering counties.

TORDYLIUM, Linn. Gen. n. 293 (Tournefort, Inst. t. 170).

T. maximum, Linn. Sp. Pl. 240 (1753). Great Hartwort.

Top. Bot. 202. Syme, E. B. iv. 155, t. 614. Nyman, 290. Fl. Oxf. 132. Denizen or alien. Septal. Hedge-banks. Probably extinct. A. June-July.

First record. Hedges near Eton Wick, in the greatest abundance, Mr. Gotobed, Bot. Guide, 1805.

2. Ock. A specimen was gathered 'near a gate going into the wood beyond the Sandford Wood, nearer to Frilford Common,' by a niece of Mrs. Davis of Sheepstead House.

? 5. Loddon. In a hedge about half a mile from Eton, *Gotobed*, in *Sm. Engl. Fl.* ii. 105 (1824). A specimen from this locality, collected by Mr. R. Gotobed in 1803, is preserved in *Herb. J. E. Smith* at the Linnean Society. The locality was very probably in Buckinghamshire.

In *Mavor's Agr. Berks* Dr. Noehden records *T. maximum* as occurring on banks of fields, but not much reliance can be placed on the statement.

In the *Phytologist* Mr. Boswell writes, '*Tordylium* seems quite lost at Eaton Wick, which is near Cumnor, not Eton, Bucks.' But there is an Eaton Wick in Buckinghamshire, and there is no authority for connecting the Eaton Wick of North Berkshire with the more celebrated Eton where Mr. Gotobed found *Tordylium*. I have failed to find it either at Eton or Frilford, or in any of its Oxfordshire or Buckinghamshire localities, so it is to be feared that this rare species is now extinct in the province of the Upper Thames.

DAUCUS, Linn. Gen. n. 296 (Tournefort, Inst. t. 161).

D. Carota, Linn. Sp. Pl. 242 (1753). *Wild Carrot, Bird's-nest.*

Top. Bot. 202. Syme, E. B. iv. 156, t. 615. Nyman, 279. Fl. Oxf. 130. Native. Pascual. Dry pastures, roadsides, chalk downs, &c. Very common and generally distributed, especially in poor soil. B. May-August.

First record. *D. carota*, Dr. Noehden, in *Mavor's Agr. Berks*, 1809.

D. Carota occurs abundantly in all the bordering counties.

****D. PUMILUS**, Ball. in Linn. Soc. Journ. xv. (1878) 477.

Orlaya maritima, Koch, in Nov. Act. Nat. Cur. xii. i. (1824) 79. Nyman. 278. This plant of southern Europe occurred as a casual on rubbish heaps at Grandpont in 1890, but the ground is now built over.

CAUCALIS, Linn. Gen. n. 294 (Tournefort, Inst. t. 171).

****C. LATIFOLIA**, Linn. Syst. ed. 12, ii. 205 (1767).

Tordylium latifolium, Linn. Sp. Pl. 240 (1753). *Turgenia latifolia*, Hoffm.

Umb. Gen. 59 (1814). Top. Bot. 203. Syme, E. B. iv. 161, t. 618. Nyman, 281.

Casual. Agrestal. Cornfields. Very rare. A. June.

First record. *Caucalis lato Apii folio*, C. B. P. Inter segetes in Comitatu Oxon. Bercheriae aliisque invenitur (Bobart), Morison, Hist. Ox. iii. 308, 1699.

In the *Flora of Oxfordshire* I referred this record to *C. daucoides*. I find, however, that the plant under the above name in Morison's Herbarium at Oxford is *C. latifolia*. I still think it probable that Bobart may have confused the two plants, and that the plant which occurred in the two counties mentioned was *C. daucoides*. I have been unable to find either species.

4. Kennet. By the railway, Newbury, a single specimen, Jackson, 1896.

C. latifolia is reported as a casual plant from Hampshire on very old authority.

C. daucoides, Linn. Sp. Pl. 241 (1753). Syst. 12, 205 (1767). *Bur Parsley*. Top. Bot. 203. Syme, E. B. iv. 160, t. 617. Nyman, 281. Fl. Oxf. 130. Colonist. Agrestal. Cornfields. Very rare. A. June–July.

First record. Prope Reading, *Hudson*, Fl. Angl. ed. 2, 113, 1778.

4. **Kennet**. Near Reading, *Huds.*, also Mr. Fardon, in *Bot. Guide*, 1805, in *Mavor's Agr. Berks*, and Mr. T. B. Flower, in *Robertson's Env. of Reading*, 1843. In fields between Wickham and Welford, *Miss Bowen*. One specimen by the railway at Newbury, *Jackson*.
I have not seen *Miss Bowen's* plants.

C. daucoides is recorded for Oxfordshire, Surrey, Hants, and Wilts.

Some authors have doubted if the *C. daucoides* of Linnaeus' *Species Plantarum* is identical with the plant so named in the *Systema*, but in the *Index Kewensis* they are treated as synonymous.

C. arvensis, *Huds.* Fl. Angl. 96 (1762). *Small Corn Parsley*.

C. infesta, *Curt.* Fl. Lond. vi. t. 23 (1798), not of *Vest. Ench.* 495.

C. helvetica, *Jacq.* Hort. Vind. iii. 12 (1776). *Scandix infesta*, Linn.

Syst. ed. 12, 732. *Torilis infesta*, *Spreng.* Pl. Umb. Prod. 24.

Top. Bot. 203. Syme, E. B. iv. 162, t. 619. Nyman, 281. Fl. Oxf. 130. Native. Agrestal. Cornfields. Rather frequent, especially on limestone or chalk soils. A. June–September.

First record. *Torilis infesta*, in *Russell's Catalogue*, 1839.

1. **Isis**. Carswell, *Miss M. Niven*. Buscot. Colehill. Shrivenham. Bourton. Buckland. Cumnor. Wytham, &c.
2. **Ock**. Marcham, *Walker*. Boar's Hill. Tubney, *Fl. Oxf.* Cothill. Pusey. Stanford. Baulking. Uffington. Kingston Lisle. Childrey. Letcombe. Lockinge. East Hendred. Chilton. Blewbury. East Hagborne. Dideot. Appleford. Sutton Courtney. Radley. Kennington. Wittenham, &c.
3. **Pang**. Compton. Hampstead Norris. Hermitage. Frilsham. Yattendon. Bradfield. Bucklebury. Sulham. Streatley. Aldworth, &c.
4. **Kennet**. Newbury, *Weaver*. Theale, *Tufnail*. Seven Barrow Field. Lambourn. Farnborough. Brightwalham. West Ilsley. Catmore. Great Shefford. Welford. Wickham. Chilton Foliat. Hungerford. Inkpen. West Woodhay. Enborne. Wasing. Burghfield. Theale. Sulhampstead, &c.
5. **Loddon**. Wargrave, *Melville*. Cornfields, frequent about Marlow, *Mil.* Shinfield. Swallowfield. Sonning. Wargrave. Remenham. Hurley. Bisham. Cookham. Bray. Maidenhead. White Waltham. Windsor, &c.

C. arvensis occurs in all the bordering counties.

C. Anthriscus, *Huds.* Fl. Angl. 99 (1762). *Hedge Parsley*.

Tordylium Anthriscus, Linn. Sp. Pl. 240 (1753). *Torilis Anthriscus*, *Gmel.* Fl. Bad. i. 613 (1806).

Top. Bot. 203. Syme, E. B. iv. 163, t. 620. Nyman, 281. Fl. Oxf. 130. Native. Sylvestral, septal. Hedgerows, borders of fields and woods and waste places. Abundant and generally distributed. A. July–September.

First record. *C. anthriscus*, Dr. Noehden, *Mavor's Agr. Berks*, 1809.

C. Anthriscus is an abundant plant in all the bordering counties. After the disappearance of *Cerefolium sylvestre* and *Ch. temulum* this takes their place as the common plant of the hedges and waysides.

C. nodosa, Scop. Fl. Carn. ed. 2, i. 192 (1772). *Knotted Parsley*.

Tordylium nodosum, Linn. Sp. Pl. 240 (1753). *Torilis nodosa*, Gaertn. Fruct. i. 82 (1788).

Top. Bot. 204. Syme, E. B. iv. 164, t. 621. Nyman, 282. Fl. Oxf. 131. Native. Glareal. Dry sunny banks, borders of fields on gravelly soil. Local. A. May–August.

First record. *Torilis nodosa*, Mr. G. G. Mill, in *Phyt.* i. 987, 1843.

2. Ock. Wootton, F. W. Bennett, in *Fl. Oxf.* Shippon. Abingdon. Cothill. Near Bagley Wood. Jenny Bunting's Parlour on Boar's Hill. Didcot.

3. Pang. Streatley Road, Lees, 1883, in *Herb. Brit. Mus.* Near East Ilsley.

4. Kennet. Between Newbury and Hermitage, Jackson. Wickham. Miss Bowen. West Ilsley. Catmore. Hermitage.

5. Loddon. Windsor, Everett. Cookham Green, Mill. Near White Waltham.

C. nodosa, which in Berkshire is often found in company with *Carum segetum*, occurs in all the bordering counties.

HEDERACEAE, Linn. Ord. Nat. (1764). *Araliaceae*, Vent. Tabl. iii. 2 (1799).

HEDERA, Linn. Gen. 249 (Tournefort, Inst. t. 384).

H. Helix, Linn. Sp. Pl. 202 (1753). *Common Ivy*.

Top. Bot. 185. Syme, E. B. iv. 181, t. 633. Nyman, 319. Fl. Oxf. 144. Native. Woods, hedges, old buildings, &c. Frequent except on the chalk downs. Climbing shrub. August–November.

First record. Sonning, Mr. S. Rudge, in *Herb. Brit. Mus.* 1800. Included in *Mavor's Agr. Berks*, 1809.

With *Sphaeria punctiformis*, Grev., and *Hysterium foliicolum*, var. *Hederae*, Grev., on the ivy about Oxford, Baxt, *Phaen. Bot.* n. 32, 1834.

In 1887, during the severe snowstorm, many leaves of ivy at Wytham had a long icicle pendant from the terminal lobe.

H. Helix occurs in all the bordering counties.

NYSSACEAE, Dumort. Anal. Fam. 13 (1829) = *Cornaceae*,
Link, Hand. ii. 2 (1831).

CORNUS, Linn. Gen. n. 139 (Tournefort, Inst. t. 410).

C. sanguinea, Linn. Sp. Pl. 117 (1753). *Dogwood, Female Cornel.*

Top. Bot. 185. Syme, E. B. iv. 186, t. 635. Nyman, 319. Fl. Oxf. 144.
Native. Hedges, thickets, and river-sides. Common, especially on
the Oolite and Chalk. Scarce in the centre of the Vale, and
absent from large areas of the Bagshot Sands. Shrub. June,
July, and sometimes flowering a second time in August-Sept.

First record. *C. sanguinea* with *Sphaeria cornicola*, Fries. (*Septoria cornicola*) on the leaves about Oxford, *Baxt. Phaen. Bot.* 114, 1835.

1. Isis. Wytham. Cumnor, *Fl. Oxf.* Appleton. Bourton. Lechlade. Coleshill. Shrivenham. Idstone. Ashbury. Compton. Beauchamp. Longworth, &c.
2. Ock. Denchworth, *Wait.* South Hinksey. Wootton. Bagley Wood. Kennington. Near Radley, very fine. By the river near Abingdon. Besilsleigh. Cothill. Marcham. Pusey. Charney Basset. Uffington. Letcombe. Lockinge. Ardington. Harwell. Sutton Courtney. Wittenham. Drayton. Didcot.
3. Pang. In Park Coppice and Beech Wood, near Hampstead Norris, *Lousley in Russell's Cat.* 1839. Very common, *W. M. Rogers*. Unwell Wood. Compton. Ashridge. Ashampstead. Yattendon. East Ilsley. Aldworth. Streatley. Sulham, &c. Common in this district.
4. Kennet. Theale. Midgham. Inkpen. Greenham. Hampstead Marshall. Hungerford. Newbury. Bucklebury. Lambourn. West Ilsley. Farnborough, &c.
5. Loddon. Hedges frequent, Marlow, *Mill.* Common about Park Place, *Stanton*. Wellington College. Bagshot. Wargrave. Maidenhead. Bisham. Cookham. Hurley. Under the Terrace of Windsor Castle, &c. Common on the Chalk in this district.

Cornus occurs in all the bordering counties.

VIBURNACEAE, Dumort. Comm. Bot. 56 (1822).

Caprifoliaceae, Vent. Tabl. ii. 593 (1799).

ADOXA, Linn. Gen. 450 (*Moschatellina*, Tournefort, Inst. t. 68).

A. Moschatellina, Linn. Sp. Pl. 367 (1753). *Tuberous Moschatel.*

Top. Bot. 184. Syme, E. B. iv. 196, t. 636. Nyman, 321. Fl. Oxf. 147.
Native. Sylvestral. Woods, hedges, and shady places on sandy soil.

Locally common, but absent from large areas. *P. March-May.*

First record. *A. moschatellina*, Mr. Bicheno, *Mavor's Agr. Berks*, 1809.

1. **Isis.** Cumnor, *Lawson*, in *Herb. Oxf.* Idstone Wood. Besilsleigh. In fruit in a wood near Chawley.
 2. **Ock.** In a copse near Wootton Heath, and near Bagley Wood. Near Oxford, *Baxt. Phaen. Bot.* n. 42 (1834). Near Kennington, *Whitwell*. Near Marcham, *Walker*. Powder Hill Copse. Near Tubney. Near Pusey.
 3. **Pang.** Streatley, *Pamplin*. In Williams' Copse, East Ilsley, and some other woods, *Lousley* in *Russell's Cat.* 1839. Tilehurst, *Tufnail*. In a coppice near Calcot Park in fruit.
 4. **Kennet.** Woods about Welford, *Bunny*, in *Russell's Cat.* Near Newbury Workhouse, *Mr. Weaver*. Wickham, *Mrs. Batson*. Burghfield, *Bird*, 1833. Riever Wood. Near Farnborough. Irish Wood. Hampstead Marshall. Enborne.
 5. **Loddon.** Blackwater, *Penny*. Near Sandhurst, *Delamotte*. Craze Hill, *Tufnail*. Arborfield, *Taylor*. Wargrave.
- The fruit appears to be only rarely produced, but often escapes observation from its being hidden by other vegetation.
Adoxa is found in all the bordering counties.

SAMBUCUS, Linn. Gen. n. 334 (Tournefort, Inst. t. 376).

S. nigra, Linn. Sp. Pl. 269 (1753).

Elder.

S. vulgaris, Tragus and Neck. Delic. Gal. Belg. i. 156.

Top. Bot. 207. Syme, E. B. iv. 199, t. 637. Nyman, 321. Fl. Oxf. 146. Native. Septal. Common and generally distributed in woods and hedges throughout the county. It occurs not only in moist woods, such as the coppice near Chawley Hurst, but is frequently to be seen by the sides of the wind-swept Ridgeway, and also at an elevation of over 900 feet on Gibbet Hill. Small Tree. May-July. First record. Sonning, *S. Rudge*, 1800, in *Herb. Brit. Mus.* *S. nigra*, *Mavor's Agr. Berks*, 1809.

A cut-leaved form (*S. laciniata*, Mill. Gard. Dict. ed. 8, 1768) is planted in shrubberies, &c., for instance near the school-house, Tidmarsh, but I have seen no wild specimens.

Var. **VIRIDIS**, Aiton, Hort. Kew. ii. 170 (1811), var. *virescens*, Koch, Syn. Fl. Germ. This form, which has the berries green when ripe, was found by Mr. J. Druce near Fyfield.

The var. **LEUCOCARPA**, Koch, Syn. Fl. Germ. 324 (1837), with white berries, I have only seen in cultivation. The form with variegated leaves is also found; it is rather plentiful by the canal near Wantage Road Station, where possibly it is a garden escape. Near Cookham some plants occurred which had larger and rounder leaflets than usual.

In Kennington Lane the berries were unusually large in 1895.

Birds eat the berries, and seeds are thus disseminated and grow on pollard willows and wall-tops.

Sambucus nigra occurs in all the bordering counties.

S. Ebulus, Linn. Sp. Pl. 269 (1753). *Danewort, Dwarf Elder.*

Top. Bot. 207. Syme, E. B. iv. 201, t. 638. Nyman, 321. Fl. Oxf. 146.
Denizen or native. Septal. Hedges. Very local and rare. Shrub.
July–September.

First record. At Seckworth (Seacourt) is abundance of Daneworth growing. This Daneworth (say people) groweth from man's blood. And that the Danes lived here, is probably true. For they fought against Wytham Castle, standing upon the hill not above halfe a mile from Seckworth, *T. Hearne, Liber Niger Seacc.* ed. 2, 591, 1771. It groweth on ye side of Botley Hills hard by the path which leads into Witome (Wytham), *MS. in Lyte's Herball*, 1660. It is not unknowne but that great store of Daneworth and Walwort groweth at (Seckworth), being testimonies embraced by most, of the effusion of men's blood (and particularly of Danes' blood) whersoever great quantities of it growes, *Antiquities of the City of Oxford, Anthony Wood*, 326 (1661–6), ed. Rev. A. Clark, 1889.

1. *Isis*. Seacourt. Wytham Wood, *MS. in Lyte and Hearne*. It still occurs at Wytham.

2. *Ock*. On a bank and by the side of the road near Cholsey Churchyard, *Lousley in Russell's Cat.* 1839.

S. Ebulus is reported from all the bordering counties.

VIBURNUM, Linn. Gen. n. 332 (Tournefort, Inst. t. 377).

V. Opulus, Linn. Sp. Pl. 268 (1753). *Guelder Rose, Water Elder.*

Top. Bot. 208. Syme, E. B. iv. 202, t. 639. Nyman, 320. Fl. Oxf. 145.
Native. Sylvestral. Moist woods, stream-sides, &c. Widely distributed, except in the heathy tracts and uplands, and too common to need a list of localities. Shrub. May–June, and sometimes again in August, as in 1893, 4, and 5.

First record. *V. opulus*, Mr. Bicheno, *Mavor's Agr. Berks*, 1809. A seedling specimen from Berkshire is in *Sir J. E. Smith's Herbarium*, dated 1810.

A form, in which a considerable number of the flowers were neuter, has been noticed in Aldermaston woods. When they are entirely native it is the var. *roseum*, Linn. Sp. Pl. l. c., which is the Guelder Rose so often cultivated.

Viburnum Opulus is a most beautiful shrub, whether in flower, or in fruit, or showing its rich crimson and purple foliage in the autumn; it occurs in all the bordering counties.

V. Lantana, Linn. Sp. Pl. 268 (1753). *Wayfaring Tree.*

Lantana, sive Viburnum, Ger. Em. 1490.

Top. Bot. 209. Syme, E. B. iv. 203, t. 640. Nyman, 320. Fl. Oxf. 145.
Native. Septal. Hedges, thickets, &c. Common and widely distributed, especially abundant on calcareous soil, rare on the

heathy district of the south-west ; its distribution is almost the opposite to the preceding species, as this prefers dry uplands on calcareous soil, while the former luxuriates in moist spinneys in low-lying situations. Shrub. May-June.

First record. We have observed it most plentifully, and apparently in its true wild situation, in chalky places, as about Henley, *Sir James Smith, E. B.* under t. 331, 1796.

1. **Isis.** Carswell, *Miss M. Niven.* Wytham. Cumnor. Buckland. Coleshill. Shrivenham. Idstone, &c.
2. **Ock.** With a species of *Erysiphe* near Bagley Wood, *Bazt. Phaen. Bot.* 128. White Horse Hill, *Trimen*, 1866. Hatford, *Wait.* Cothill. Ferry Hinksey. Marcham. Tubney. Didcot. Wittenham. Lockinge. Radley. Kennington. Wantage. Uffington. Letcombe. Blewbury. Little Coxwell. East Hanney, &c.
3. **Pang.** Streatley, *Pamplin.* East Ilsley. Ashridge. Unwell Wood. Aldworth. Frilsham. Bradfield. Ashampstead. Basil-don. Compton. Yattendon. Sulham. Tilehurst. Bucklebury, &c. Common in this district.
4. **Ken-net.** Hampstead Marshall woods, *Bicheno, in Mavor's Agr. Berks*, 1809. Riever Hill. Inkpen. Lambourn. Farnborough. Fawley. Donnington. Enborne. Theale. Hungerford. Padworth, &c.
5. **Lod-don.** Bisham Wood, *Mill.* Common on the Chalk about Park Place, *Stanton.* Stubbing's Heath. Wargrave. Cookham. Hurley. Maidenhead. Sonning. Waltham. Bray. Frogmore, &c.

V. Lantana occurs in all the bordering counties.

****SYMPHORICARPOS RACEMOSUS**, Michx. *Fl. Bor. Amer.* i. 107. *Snow Berry.*

Lonicera Symphoricarpos, Linn. *Sp. Pl.* 175 (1753). *Symphoria racemosa*, Pursh, *Fl. Am. Sept.* i. 162. *Fl. Oxf.* 148. *Comp. Cyb.* Br. 521.

Alien. A North American shrub, extensively planted in ornamental grounds, &c., well known from its large white berries, which remain on the bushes for a considerable time.

It has been noted at Faringdon by *Mr. F. T. Richards*; at Arborfield, by *Miss Tayler*; and it occurs at Inglesham, Tubney, near Wantage, Didcot, Ashley Hill, Park Place, Finchampstead, Windsor Park, near Maidenhead, Warren Row, and in a hedge some distance from the village of Kingston Bagpuze.

LONICERA, Linn. Gen. n. 210.

***L. CAPRIFOLIUM**, Linn. *Sp. Pl.* 173 (1753). *Perfoliate Honeysuckle.*

Comp. Cyb. Br. 521. Syme, *E. B.* iv. 205, t. 641. Nyman, 321. *Fl. Oxf.* 147. Alien or denizen. Woods and hedges. Very rare. Shrub. May-July.

First record. *Periclymenum albo-p-foliat. serotinum*, D. Harding. *Mr. Schrousbey* hath it from Hinksey, *Herb. Du Bois* at Oxford about 1700.

2. **Ock.** Hinksey as above, but doubtfully wild. 'Bagley Wood, many plants and apparently wild,' *Rev. W. T. Bree in New Bot. Guide*, 1835.

8. **Pang.** Near Tilehurst, *Tufnail*. Between Goring and Reading, A. French in *Herb. Druce*.

L. Caprifolium is recorded for Hants and Oxfordshire.

L. Periclymenum, Linn. Sp. Pl. 173 (1753). *Woodbine, Honeysuckle*.

Periclymenum, Gerard, 743, and of Dioscorides.

Top. Bot. 210. Syme, E. B. iv. 206, t. 642. Nyman, 321. Fl. Oxf. 147. Native. Sylvestral. Septal. Woods, thickets, hedges, &c. Widely distributed, and too common and too well known to require the mention of localities. Even in the area of the pinewoods it may often be seen. Shrub. May–September.

First record. *Periclymenum fol. Quercinis* [Quercinis] non procul Oxonio, Mr. Jenner, *Merrett's Pinax*, 1666. In colle Chilswelliensi prope Oxon, MS. in [How's] *Phyt. Brit. in Magdalen Coll. Lib.* about 1659. Sonning, Mr. S. Rudge in *Herb. Brit. Mus.* 1800. With oaklike leaves in Bagley Wood, *Baxt. Phaen. Bot.* n. 287.

The form alluded to by Mr. Baxter is not uncommon in shady woods where the prostrate barren branches have often very pubescent leaves (var. *pubescens*, Hard.). Mr. J. Carroll, in 1849, gathered a monstrous form on the palings of Windsor Park.

L. Periclymenum is found in all the bordering counties.

***L. Xylostemum**, Linn. Sp. Pl. 174 (1753). *Fly Honeysuckle*.

Comp. Cyb. Br. 521. Syme, E. B. iv. 208, t. 643. Nyman, 322. Fl. Oxf. 147. Alien. Hedges, shrubberies. Very rare. Shrub. July.

Planted in many situations, as at Radley; it has a semi-wild appearance in a hedge near Ambarrow.

RUBIACEAE, B. Juss. Hort. Trianon (1759).

RUBIA PEREGRINA, Linn. Sp. Pl. 109 (1753). *Wild Madder*.

R. anglica, Huds. Fl. Angl. 54 (1762). Top. Bot. 210. Syme, E. B. iv. 211, t. 645.

Ambiguity or error. 'In the neighbourhood of Kintbury or Inkpen,' Mr. H. Reeks in *Britt. Contr.* 1871. A most unlikely station, as the plant is only recorded for South Hants of the bordering counties. I suspect that *Asperula odorata* or *Galium Mollugo*, which had existed through the winter, was mistaken for *Rubia* by Mr. Reeks.

GALIUM, Linn. Gen. n. 117 (*Gallium*, Tournefort, Inst. t. 39).

G. Cruciata, Scop. Fl. Carn. ed. 2, i. 100 (1772). *Mugweed, Crosswort*.

Vaillantia Cruciata, Linn. Sp. Pl. 1052 (1753). *Cruciata*, Dodoens. *Galium cruciatum*, With. Bot. Arr. ed. 3, ii. 186 (1796), Sm. E. B. t. 143.

Top. Bot. 211. Syme, E. B. iv. 213, t. 647. Nyman, 331. Fl. Oxf. 151. Native. Septal. Hedges, woods, thickets. Locally abundant, but absent from considerable areas. A conspicuous feature in the vegetation of the lanes of the central part of the county. P. April–June.

First record. *Golden Crosswort*. It grows on ye sides of Botley Hills in the pastures, MS. in *Lyte's Herball*, 1660. Medley wood, Sir Joseph Banks, 1770. (Perhaps in Oxfordshire.) *Galium cruciatum*, Mr. Bicheno, Dr. Noehden, *Mavor's Agr. Berks*, 1809.

1. *Isis*. Buckland and Pusey, *Boswell*. Coleshill. Buscot. Cumnor. Wytham.
2. *Ock*. Marcham, *Walker*. Tubney, *Fl. Oxf.* Near Pusey.
3. *Pang*. Bradfield, *Jenkinson*. Yattendon, *Weaver*. Tilehurst, *Tufnail*. Near Pangbourn. Ashampstead. Aldworth. Bucklebury. Basildon. Abundant near Bottom Farm.
4. *Kennet*. Chapel Row, *Bicheno*, l. c. Mortimer. Aldermaston. Inkpen. Hungerford. Riever Wood. Burghfield. Southcote.
5. *Loddon*. Bisham Wood, *Mill*. Near Lord Downshire's, *Penny*. Shinfield, *Tufnail*. Arborfield. Hurst. Near Loddon Bridge. Near Ashley Hill. Cookham, &c.

The foregoing are only representative of a large number of localities. The var. *laevipes*, Koch, Syn. Fl. Germ. 329 (1837), with glabrous pedicels and peduncles, which occurs in Germany, should be looked for. *Galium Cruciatum* occurs in all the bordering counties.

G. verum, Linn. Sp. Pl. 107 (1753). *Yellow Bedstraw*, *Lady's Bedstraw*, *Cheese Rening*. *Gallium luteum*, C. B. Pin. 335.

Top. Bot. 210. Syme, E. B. iv. 214, t. 648. Nyman, 328. Fl. Oxf. 150. Native. Pascual. Dry pastures, field-borders, not only in dry sandy places, but sometimes in clayey meadows. Frequent and widely distributed, and a considerable factor in the colour effect of our meadows and upland pastures. P. May–September.

First record. *G. verum*, Dr. Noehden, *Mavor's Agr. Berks*, 1809.

An enumeration of localities is not needed since this well-known plant grows plentifully in all the districts and probably occurs in every rural parish. A pale-flowered form (*f. pallidiflora*) occurs with no trace of hybridity in it, and must not be confounded with *G. Mollugo-verum*. The common form of *G. verum* with us is glabrous (*G. glabrum*, Req. MSS. in Gren. et Godr. Fl. France, ii. 19), but the stems in some instances are slightly pubescent, as in plants from Frilford.

G. verum occurs in all the bordering counties.

G. erectum, Huds. Fl. Angl. 56 (1762).

Top. Bot. 212. Syme, E. B. iv. 217, t. 649. Nyman, 324. Fl. Oxf. 148. Native or colonist. Pascual. Meadows and pastures. Very local and rather rare. P. July–September.

First record. *Gallii species* prope Oxonium a D. Buddle in *Herb. du Bois* at Oxford, 1700. *G. erectum*, Dr. Noehden, *Mavor's Agr. Berks*, 1809.

2. *Ock*. Typical plants occur in a grass field near Marcham and at Frilford.

5. Loddon. Wellington College, *Penny*, 1874 (I have not seen specimens). Abundant in a field on Berkshire side just below Albert Bridge, Old Windsor, *Bolton King*. Bray meadows. In a field which had been recently laid down for grass near Cookham, but not typical.

G. erectum appears to be more of a colonist than a native in Berkshire, and is recorded for all the bordering counties except E. Gloucestershire.

G. Mollugo, Linn. Sp. Pl. 107 (1753). *Hedge Bedstraw*.

Mollugo vulgarior, Park. 565. *Rubia sylvestris*, Ger. Em. 1118.

Top. Bot. 212. Syme, E. B. iv. 218, t. 650. Nyman, 324. Fl. Oxf. 148. Native. Septal, &c. Hedges, railway-embankments, thickets, &c.

Very common and generally distributed. A great adornment to our hedgerows when in flower. P. May-September.

First record. Sonning, *Mr. S. Rudge in Herb. Brit. Mus.* 1800. Published as *G. mollugo*, Wild Madder goose grass, Dr. Noehden, *Mavor's Agr. Berks*, 1809.

Our most frequent form of this variable species is the large free-growing plant, with oblanceolate leaves arranged about eight in a whorl, with a large open panicle of many flowers becoming divaricate in fruit, to which the name *G. elatum*, Thuill., Fl. Par. ed. 2, 76, is given. This is the common plant of hedgerows and copses, &c., throughout the county. Specimens were sent to the *Bot. Exch. Club* by the author in 1892. On the open chalk downs, where *G. Mollugo* is sometimes found in coarse grassy spots, the plant naturally becomes more condensed, the leaves narrower and of thicker texture, and with the margins more or less recurved, the whorls being reduced to six leaves, while the panicle is less open, with fewer flowers, and hardly divaricate in fruit. This form has been named by British botanists var. *INSUBRICUM*, ? *G. insubricum*, Gaud. Fl. Helv. i. 421. See Reichb., *Ic. Fl. Germ. et Helv.* xvii. t. 1189, fig. i. Koch describes it as having papyraceous leaves, while Grenier and Godron in *Fl. Fr.* ii. 22, describing it under the name var. *umbrosum*, say that it 'has a depauperate panicle and larger leaves than the type,'—a description by no means fitting to the above plant, which I am inclined to think is only a form educed by the drier soil and more exposed situation in which it occurs, as at Uffington and Upton in the Ock district; at Basildon, Sulham, and near East Ilsley, in the Pang district; near Lambourn and Catmore in the Kennet district; and near Park Place and Bisham in the Loddon district.

In shady places, as at Basildon, I have found a plant with a smaller and less divaricate panicle, but with larger and broader leaves of a thinner texture, agreeing with specimens of *G. tyrolense*, Willd.

Enum. Hort. Berol. 153 (1809) and Herb. n. 2721, which is considered to be synonymous with the plant of Gaudin.

We have another form of *G. Mollugo* which has a distinctly hairy stem, especially under the lower whorls of leaves, and with more patent panicle-branches. It is very near to the var. *pubescens*, Schrad. Spic. Fl. Lips. 16 (1794), but the leaves are not so long. Nyman places the latter variety under *G. erectum*, but there is great diversity of opinion respecting the limitation of the two species; indeed Bentham and other authorities have united them.

A *Galium* was sent by Mr. Bolton King from wet meadows by the Thames at Old Windsor with the following note: 'Mr. H. C. Watson has examined specimens of this and thinks it may be the *diffusum* [D. Don in Hooker, Fl. Scot. i. 52], the *cinereum* of Smith, but he is very doubtful about it. Prof. Babington thinks it is a form of *erectum*, while Dr. Boswell thinks it is *Bakeri*.' See *Bot. Exch. Club Report* (1879), and *Rep.* (1892) 373. Perhaps this may be identical with my plants from Bray which I am inclined to refer to *G. dumetorum*, Jord. Pugill. 78.

G. MOLLUGO × *VERUM* = *G. verum*, var. *ochroleucum*, Syme, l. c. 214, occurs on a bank on the Abingdon Road between Oxford and Bagley Wood with both of the assumed parents. It is nearer to *verum* than to *Mollugo*, the foliage being nearly that of *G. verum*, but it is a much taller plant with larger greenish-white flowers. See *Rep. of Bot. Exch. Club*, 1888. It has remained constant for eight years. The description of *G. ambiguum*, Gren. et Godr. Fl. Fr. ii. 20, appears to be fairly characteristic of our plant, but I have not been able to see an authentic specimen. To this hybrid may also probably be referred the plant described as '*G. verum*, var. *flore albo*, in Sonning Lane. It differs from *G. verum* by its higher growth, as well as in the colour of the flowers and their not being so abundant,' by Mr. S. Rudge in *Bot. Guide*, 1805, and *Herb. Brit. Mus.* The specimen is allied to *G. approximatum*, Gren. et Godr. l. c., but the latter is said by Corbière in *Nouvelle Flore de Normandie*, 302 (1893), to be a hybrid of *G. verum* and *G. erectum*.

G. Mollugo occurs in all the bordering counties.

G. hercynicum, Weigel. Obs. 25 (1772). *Heath Bedstraw*.

G. saxatile, Linn. Sp. Pl. 154, ed. 2 (1762), not of ed. 1, 106 (1753).

Top. Bot. 212. Syme, E. B. iv. 219, t. 651. Nyman, 327. Fl. Oxf. 149. Native. Ericetal. Heathy ground and open woods. Locally abundant and a conspicuous feature in the heathy districts, but absent from large tracts of the northern and eastern side of the county. P. May–August.

First record. *Mollugo montana minor Gallo albo similis*, Ray, Hist. 482. In pratis prope Chilswell, Dr. Dillenius in Herb. Oxf. 1744. *G. procumbens*, Dr. Noehden, *Mavor's Agr. Berks*, 1809.

1. **Isis.** Wytham. Pusey. Longworth. Cumnor.
2. **Ook.** Chilswell Farm, *Dillenius*. Tubney, *Walker*. Bagley Wood. Boar's Hill range. Frilford. Cothill. Near Didecot.
3. **Pang.** Cold Ash. Oare. Hermitage. Bucklebury. Frilsham. Basildon. Ashampstead, &c.
4. **Kennet.** Newbury, *Russell's Cat.* Mortimer, *Tufnail*, abundant over the greater part of the southern side of the district, but thinning out as the chalk comes to the surface in the northern part. Here however it is to be found on the fragments of Tertiaries, which are seen near Ilsley, &c., and also nearly on the summit of Walbury Camp.
5. **Loddon.** Abundant over the heathy portion of the district, on the sandy parts of Windsor Park, and on Stubbing's Heath and the commons between Maidenhead and Reading.

G. hercynicum occurs in all the bordering counties.

G. sylvestre, Pollich, Hist. Pl. Pal. i. 151 (1776).

G. sylvestre, var. *hirtum*, Koch, Syn. Fl. Germ. 335 (1837).

Top. Bot. 213. Syme, E. B. iv. 219, t. 652. Nyman, 327.

Native. Pascual. Grassy slopes on the chalk downs. Very local.

A. May-July.

First found by Mr. F. Tufnail in 1891, recorded in *Journ. Bot.* 56, 1892, and distributed through the *Bot. Exch. Club* of that year by the author.

3. **Pang.** Near Sulham, *Tufnail*.

The locality where this interesting addition to the Thames province was found by Mr. Tufnail, is a grassy slope on which the prevailing vegetation consists of *Galium Mollugo*, var. *insubricum*, *Gentiana Amarella*, *Asperula cynanchica*, *Campanula glomerata*, *Bromus erectus*, *Avena pubescens*, &c. A few larches have been planted in the vicinity, and there is a patch of *Euphorbia Cyparissias* on the same slope, but it is not very near to the *Galium*, which I am disposed to think may be a native species here. It is not the typical plant, but the variety with narrower hairy leaves to which the name *G. nitidulum*, Thuill. Fl. Par. ed 2, 76, is applied, and is the *G. sylvestre*, var. *pubescens* of Schrad. Spic. 13, according to Koch.

G. sylvestre is not reported from any of the bordering counties.

G. palustre, Linn. Sp. Pl. 105 (1753). Marsh Bedstraw.

Galium palustre album, C. B. Pin. 335. *Gallion palustre*, Dodoens.

Top. Bot. 211. Syme, E. B. iv. 221, t. 653. Nyman, 328. Fl. Oxf. 149.

Native. Uligin. Meadows, marshes, ditches, pond-sides, &c. Common and widely distributed. P. June-September.

First record. Bulmarsh Heath, Mr. S. Rudge, in *Herb. Brit. Mus.* 1800.

G. palustre, White ladies' Bedstraw, Dr. Noehden, *Major's Agr. Berks*,

1809. This is a very variable species. I have enumerated three varieties, but many of our plants scarcely agree with either, possessing as they do intermediate characters.

Var. *ELONGATUM* (Presl, Delic. Prag. 119 (1822), as a species), not of Syme and Reichenbach, &c. The true plant of Presl has smooth stems 'caule erecto elongato tetragono laevissimo,' and is found in very wet situations along our stream-sides. Mr. Boswell records it from Tubney and the Rev. W. W. Newbould from Pangbourn, but I have not seen their specimens. I have seen it near Moulsoford, at Padworth, by the Blackwater at Thatcher's Ford and Jouldern's Ford, whence specimens were sent to *Bot. Exch. Club* in 1892, and near Old Windsor. *G. elongatum* is kept as a distinct species in the Index Kewensis and by many continental authorities; but doubtless *G. maximum*, Moris, is combined with it.

Var. *LANCEOLATUM*, Uechtritz in Flora, v. (1822) 440. *G. maximum*, Moris, Stirp. Sard. ed. 1, 55 (1827). *G. palustre*, var. *elongatum*, Syme, t. 653, and of most English authors, not *G. elongatum*, Presl. This plant, which is as robust as the preceding variety, has rough stems, but less rough than in the var. *Witheringii*. It is rather frequent in meadow ditches and marshes. I have seen it near Lechlade, near Appleton, and near Wytham in the Isis district; at Cothill and Steventon, near Appleford, and in the Abingdon meadows in the Ock district; at Tidmarsh in the Pang district; at Southcote, &c., in the Kennet district; and at Ruscombe, Long Moor, Winkfield, and Coleman's Moor in the Loddon district.

Var. *WITHERINGII* (Sm. Fl. Brit. 174; E. B. t. 2206, as a species). *G. montanum*, With. Bot. Arr. ed. 3, ii. 187, not of Linnaeus. A not uncommon form, which is much smaller than the preceding, with very rough stems and ascending panicle-branches. I have seen it in the Isis district at Wytham, Buscot, and Appleton; in the Ock district at Radley, South Hinksey, Steventon, Coxwell, Pusey, and Garfield; in the Pang district at Bucklebury, and Fence Wood; in the Kennet district at Aldermaston, near Newbury, Theale, Inkpen, &c.; in the Loddon district at Winkfield, Cookham, Wokingham, Bracknell, Finchampstead, Windsor Park, Warren Row, Sandhurst, &c.

Doubtless these varieties are more frequent than the above records show. During wet seasons the flowers are comparatively few, as then excessive leaf-development goes on. In the dry summer of 1892 the profusion of the flowers was very noticeable, especially by the Upper Thames, when it became a very ornamental plant to the marshes and ponds.

G. palustre occurs in all the bordering counties.

G. uliginosum, Linn. Sp. Pl. 106 (1753). *Marsh Goose-grass*.
Top. Bot. 211. Syme, E. B. iv. 222, t. 655. Nyman, 327. Fl. Oxf. 149.

Native. Uliginous. Wet heaths, marshes, among rushes on the borders of ponds, &c. Local. P. June–August.

First record. *Aparine palustris minor Parisiensis flore albo* . . . Chilswell ubi copiose crescit vera planta, Dr. Dillenius in *Herb. Oxf.* 1730. Specimens from this locality were sent to the Bot. Exch. Club in 1892 by the author. *G. uliginosum*, Dr. Noehden, *Mavor's Agr. Berks*, 1809.

1. Isis. Carswell, Miss M. Niven. Wytham.
2. Ock. Marcham, Walker. Chilswell Hill, Dillenius. Bagley, Baxter. South Hinksey. Cothill. Frilford. Tubney.
3. Pang. Fence Wood, W. M. Rogers. Hermitage.
4. Kennet. Greenham, Rupert Jones. Mortimer, Tufnail. Burghfield. Beenham. Silchester. Aldermaston. Snelsmore. Padworth. Hampstead Marshall. Crookham Heath. Sandleford. Newbury Wash.
5. Loddon. Wet places, Marlow, Mill. Maiden Early, Tufnail. Near Park Place, Stanton. Included in the Well. Coll. list for 1894. Bagshot. Sandhurst. Blackwater. Long Moor. Coleman's Moor. Ambarrow.

G. uliginosum is recorded for all the bordering counties.

G. Aparine, Linn. Sp. Pl. 108 (1753). Goose-grass, Cleavers.

Aparine vulgaris, C. B. Pin. 334.

Top. Bot. 214. Syme, E. B. iv. 225, t. 658. Nyman, 330. Fl. Oxf. 150.

Native. Septal, &c. Hedgerows, waste places, cultivated ground, thickets, &c. Very common and generally distributed, except on the uncultivated chalk downs and the heaths of the south-west.

A. May–August.

First record. *G. aparine*, *Mavor's Agr. Berks*, 1809.

It varies in size to a considerable degree; the contrast of specimens from a dry field near Hungerford, where the plant was only a few inches high, with the great rampant plant from fields near South Stoke five or six feet long, is very striking. It occurs plentifully in garden ground in Reading and on pollard willows near Abingdon.

G. Aparine occurs in all the bordering counties.

G. tricoorne, Stokes in With. Bot. Arr. ed. 2, i. 153 (1787). Three-horned Goose-grass.

Top. Bot. 214. Syme, E. B. iv. 226, t. 659. Nyman, 329. Fl. Oxf. 150.

Colonist. Agrestal. Cornfields, chiefly on calcareous soil. Rather local. A. June–August.

First record. *Aparine foliis brevioribus et semine laeviore*. Inter segetes et fabas variis locis agri Oxoniensis reperitur (Bobart), *Morison, Hist. Ox.* iii. 332, 1699. Moultsford, Rev. W. W. Newbould in *Britt. Contr.* 1871.

1. *Isis*. Fields near Cumnor. Buckland.
2. *Ock*. Fields between Hinksey and Cumnor, *Thurland*. Denchworth, *Wait*. Blewbury. Hagborne. Marcham. Frilford. Near Lockinge. Boar's Hill. Near Dry Sandford.
3. *Pang*. Moulsoford, *Newbould*, l.c. Pangbourn. Unwell Wood, *Lawson in Herb. Oxf.* Bucklebury.
4. *Kennet*. Newbury, *Weaver*. Padworth. Inkpen.

G. tricornis is probably more frequent than the foregoing records show, as from its place of growth it is easily neglected or overlooked. It occurs in all the bordering counties.

****G. SPURIUM**, Linn. Sp. Pl. 106 (1753). Comp. Cyb. Br. 522. Occurred as a casual plant on rubbish near Grandpont and by the railway at Didecot, but in each case for only one season.

ASPERULA, Linn. Gen. n. 113.

A. odorata, Linn. Sp. Pl. 103 (1753), and of Parkinson (1640). *Woodruff*. Top. Bot. 215. Syme, E. B. iv. 228, t. 660. Nyman, 332. Fl. Oxf. 151. Native. Sylvestral. Woods and thickets. Rather rare in the neighbourhood of Oxford, abundant in woods on the chalk downs, but less frequent in the heathy woods of the south-west. P. May-June. First record. *Wilde Madder* grows in Copse by Chyllsey Woods, *MS. in Lyte's Herball*, 1660; and *A. odorata* in *Mavor's Agr. Berks*, 1809.

2. *Ock*. Childswell Woods, *MS. in Lyte*. Bagley Wood, *Baxt. Phaen. Bot.* 46. Tubney, *Walker*. Rare on the Boar's Hill range.
3. *Pang*. Streatley, *Pamplin*. Common about Beedon, *W. M. Rogers*. Unwell Wood. College Wood. Abundant in most of the woods in this district.
4. *Kennet*. Wickham, *Mrs. Batson*. Shaw, *Weaver*. Ufton Court, 1835, *Kirby*. Welford. Riever Wood. Catmore Wood. W. Ilsley. Tilcombe Green. Inkpen. Hampstead Marshall.
5. *Loddon*. In all the woods about Marlow, *Mill*. Common about Park Place, Rose Hill, *Stanton*. Well. Coll. List. Wargrave. Ashley Hill. Bowsey Hill. Near Cookham. Culham Woods near Hurley. Windsor Park. Quarry Wood. Very large and free flowering in 1896.

A. odorata is found in all the bordering counties.

The seeds, Mr. F. Tufnail informs me, often take longer than a year to germinate.

A. cynanchica, Linn. Sp. Pl. 104 (1753). *Quinancy-wort*.

Top. Bot. 215. Syme, E. B. iv. 229, t. 661. Nyman, 333. Fl. Oxf. 151. Native. Pascual. Grassy chalk downs, of which it is an abundant and characteristic plant. Limestone pastures, local and rare. Absent from the Clays and Bagshot Sands. P. May-September.

First record. *Asperula quinta* Gerardi. Small red-flowered Woodruff found near Hinksey, *M. Harding MS. in Bibl. Brit. Mus.* circa 1660. *A. cynanchica*, Dr. Noehden and Mr. Bichenov, *Mavor's Agr. Berks*, 1809.

1. **Isis.** Downs above Idstone and Ashbury.
2. **Ock.** Hinksey, *Harding* (now probably extinct). Cherbury Camp, *Boswell*. Dorchester Clump, *Rev. F. Bennett*. Kingston Lisle. Uffington. Letcombe, *Bellamy*. Abundant along the chalk escarpment from the White Horse Hill to Lowbury.
3. **Pang.** Shooter's Hill, Pangbourn, *Walk. Fl.* Streatley, *Pamplin*. Ilsley Downs, in great quantity, *W. M. Rogers*. Near Unwell Wood, *Lawson in Herb. Oxf.* Abundant on the Compton Downs and on the downs above Moulsoford, Pangbourn, and Basildon. Sulham.
4. **Kennet.** Catmore and W. Ilsley Downs, *W. M. Rogers*. Downs north of Farnborough. Lambourn Downs. Near Hungerford. Walbury Camp. Woodhay Downs.
5. **Loddon.** Bank of road from Maidenhead to Henley. Foot of Winter Hill, *Mill*. Park Place, frequent, *Stanton*. Wargrave. Cookham.

A. cynanchica occurs in all the bordering counties.

****A. ARVENSIS**, Linn. Sp. Pl. 103 (1753).

Comp. Cyb. Br. 521. Syme, E. B. iv. 230, t. 662 bis. Nyman, 335.

Casual. Alien. Near the railway, Newbury, *Weaver*. Near Wickham, perhaps a garden escape, *Mrs. Batson*. Naturalized in shrubberies, Hurst Grove, *Melville*. By the railway at Didcot.

SHERARDIA, Linn. Gen. n. 112 (Dill. Nov. Pl. Gen. 96, t. 3).

S. arvensis, Linn. Sp. Pl. 102 (1753). *Field Madder, Spurwort.*

Top. Bot. 215. Syme, E. B. iv. 231, t. 663. Nyman, 335. Fl. Oxf. 152. Native. Agrestal. Cultivated fields, roadsides, and waste ground.

Very common in all suitable situations and generally distributed, reaching to the summit of Walbury Camp. B. Feb.-Oct.

First record. *S. arvensis*, *Mavor's Agr. Berks*, 1809.

It is rather variable in degrees of hairiness, &c., but its most marked form is *var. WALRAVENII*, Wirtg. Herb. Pl. Crit. n. 367 = *var. MARITIMA*, Grisebach, Fl. Rumel. ii. 169 (1844); Kops, Fl. Batava, xvii. t. 1352, which was recognized for the first time in Britain by me in some corn-fields on the chalk near Hurley. The history of the variety is described at length in the *Journ. Bot.* pp. 240-243 (1894). It is distinguished from the type by the calyx, which in the typical plant has six subulate teeth, while in this variety they are almost effaced and very short and obtuse. Since that time I have seen it in fields at Sulham, Wootton, Hodecott, near Maidenhead, and Cumnor. It also occurs in Oxfordshire at Headington and Forest Hill (*J. W. Baker*).

Usually *S. arvensis* is subglabrous, but occasionally it is clothed with pubescence; it is then the var. *hirsuta*, Baguet; the broad-leaved form is var. *ovata*, Fisch.-Benz.; and the white-flowered form from the Ridgeway is var. *neglecta* (Guep. ex Nym. Consp., as a species). A more erect form was seen with the type at Tidmarsh. The var. *Waltraventii*¹ from Hurley was more hairy than usual, and in this, as in the specimens from the Hook of Holland alluded to by Ascherson, the fruit is rather less hairy than usual. It is probable that the variety with the reduced calyx limb and teeth will be found to be widely spread in Britain. I gathered it in Portland Isle, Dorset, in 1895.

Sherardia arvensis is found in all the bordering counties.

VALERIANACEAE, Batsch. Tabl. Affin. 227 (1802).

VALERIANA, Linn. Gen. n. 43 (Tournefort, Inst. t. 52).

V. dioica (dioeca), Linn. Sp. Pl. 31 (1753). *Marsh Valerian.*

Top. Bot. 215. Syme, E. B. iv. 238, t. 668. Nyman, 336. Fl. Oxf. 153. Native. Uligin. Marshes, bogs, wet meadows. Locally common and widely distributed. Absent from considerable areas. P. April-June.

First record. *V. dioica*, Dr. Noehden, *Mavor's Agr. Berks*, 1809.

1. **Isis.** Carswell, *Miss M. Niven*. Coleshill. Wytham. Shrivenham.
2. **Ock.** Near Uffington. Frilford. Kennington, *Fl. Oxf.* Near Marcham, *Walker*. Cothill. Wootton. Boar's Hill. Wantage. Radley. Steventon. Appleford. Blewbury. Cholsey. Challow.
3. **Pang.** Bradfield, *Jenkinson*. Pangbourn. Moulsoford. Standford Dingley.
4. **Kennet.** Newbury, *Russell's Cat.* 1839. Greenham. Aldermaston. Silchester. Kennet meadows, rather frequent. Near Newbury. Kintbury. Chilton Foliat. Shefford. Snelsmore. Beenham. Thatcham. Theale. Midgham. Tilcomb Green.
5. **Loddon.** Aston, Warren Row, *Stanton*. Marsh near Sandford Mill, *Salmon*. Hurst, *Melville*. Sonning meadows. Shinfield. Crazy Hill, *Tufnail*. Coleman's Moor. Long Moor. Near Hurley. Wokingham. Easthampstead. Sandhurst.

Valeriana dioica is found in all the bordering counties.

V. officinalis, Linn. Sp. Pl. 31 (1753). *Small Valerian, True Valerian.*

V. collina, Wallr. in *Linnaea*, xiv. (1840) 537. *V. officinalis*, var. *Mikanii*, Syme, E. B. iv. 236. *V. Mikanii*, Lond. Cat., not *V. Mikaniae*, Lindl. in Journ. Hort. Soc. iii. (1848) 316.

Top. Bot. 216. Reichb. Ic. Fl. Germ. et Helv. xii. t. 727, f. 1432. Nyman, 336. Fl. Oxf. 152.

¹ See a paper on this form by P. Ascherson in *Berichte der Deutschen Botan. Gesellschaft* (Sep. 1892) 1893, pp. 29-42.

Native. Sylvestral. Dry woods, chiefly on chalky or limestone soil.

Local, but widely distributed. P. May–August.

First certain record. *V. Mikanii*, Streatley, the author in *Rep. of Bot. Record Club*, 135, 1880.

1. **Isis.** Wytham. Idstone. Buscot.
2. **Ock.** Uffington. Tubney. Letcombe. Lockinge. Blewbury.
3. **Pang.** Unwell Wood. Streatley Wood, *Fl. Oxf.* and *Rep. of Bot. Rec. Club*. Common about Oare. Ashridge Wood. Ashampstead. Pangbourn. Sulham. East Ilsley. Hampstead Norris. Hermitage. Yattendon. Frilsham. Bradfield.
4. **Kennet.** Catmore. W. Ilsley. Lambourn. Riever Wood. Inkpen.
5. **Loddon.** Bisham Wood. Wargrave. Park Place. Cookham, &c.

The more numerous pairs of leaflets 8–10 (in *sambucifolia* 4–6), the more spreading leaves, and divaricate cyme distinguish it from the next species.

Dr. Lange, Mr. Daydon Jackson, Sir J. D. Hooker, &c., have been followed in retaining the name *V. officinalis* for this species. *V. Mikanii* is untenable (if for no other reason) on account of the earlier *V. Mikaniae*, Lindley—a Guatemalan plant—the spelling of which only differs by a single letter.

V. officinalis has been seen by me at Loudwater in Bucks, near Idstone in Wilts, and in Oxfordshire; and it is recorded for Hants and Surrey.

V. sambucifolia, Mikan. fil. ex Pohl, Tent. Fl. Bohem. i. 41.

V. major, Tab. *V. officinalis*, Sm. E. B. t. 698, pro parte.

Top. Bot. 216. Syme, E. B. iv. 236, t. 666. Curt. Fl. Lond. vi. t. 3.

Nyman, 336. Fl. Oxf. 152. Reichb. Ic. l. c. t. 726.

Native. Paludal, &c. River-sides, damp hedges, wet woods, &c.

Rather common and widely distributed. P. June–August.

First record. Sonning, Mr. S. Rudge, *Herb. Brit. Mus.* *V. officinalis*, great wild valerian, Dr. Noehden. Plentiful about Newbury.

The root collected for the London market, Mr. Bichenov, *Mavor's Agr. Berks*, 1809.

This Valerian is too frequent to need a detailed list of localities, and it occurs in all the bordering counties.

KENTRANTHUS, Neck. Elem. Bot. i. 122 (1790).

****K. RUBER.** *Wall Valerian.*

Valeriana rubra, Linn. Sp. Pl. 31. *Centranthus ruber*, DC., Fl. Fr. iv. 238 (1805). Comp. Cyb. Br. 523. Syme, E. B. iv. 233, t. 664. Nyman, 337. Fl. Oxf. 153. Alien. Railway banks, walls, &c. Rare. P. May–July. First found in Berkshire by the author in 1890.

1. **Isis.** Appleton, on the village walls.
3. **Pang.** Bradfield, but of no distant introduction.
4. **Kennet.** Naturalized about the ruined portion of Southcote House. Reading.
5. **Loddon.** Plentiful in the railway cutting between Maidenhead and Bourne End, but near to Maidenhead; it is associated with *Lathyrus latifolius* and *Sedum reflexum*.

VALERIANELLA, Pollich, Hist. Pl. Palat. i. 29 (1776).

V. olitoria, Pollich, l. c. p. 30 (1776). *Lamb's Lettuce*.

Valeriana locusta, var. *olitoria*, Linn. Sp. Pl. 33 (1753). *Lactuca agnina*, Ger. Em. 310. *Fedia olitoria*, Vahl, Enum. ii. 19.

Top. Bot. 216. Syme, E. B. iv. 240, t. 669. Nyman, 338. Fl. Oxf. 153. Native. Agrestal, &c. Dry hedge-banks, walls, and cornfields. Rather common and widely distributed, but absent from a considerable area of the heathy districts. A. April-June.

First record. South Hinksey, *Mr. Baxter MSS.* 1812. Cornfields, frequent, Mr. G. G. Mill in *Phytologist*, i. 983, 1843.

The common form in Berkshire has the fruit glabrous.

Var. *LASIOCARPA*, Reichb. Fl. Germ. Exc. 198 (1831), with hairy fruit, occurs at Cothill, Tidmarsh, Pangbourn, &c., but is easily overlooked.

V. olitoria occurs in all the bordering counties.

V. carinata, Lois. Not. Pl. de Fr. 149 (1810).

Fedia carinata, Stev. in Mém. Soc. Nat. Mosc. v. (1817) 346.

Top. Bot. 216. Syme, E. B. iv. 241, t. 670. Nyman, 339. Fl. Oxf. 154. Colonist. Septal. Dry banks. Very local and rare. A. May-June. First found in Berkshire by the author in 1893.

3. **Pang.** On the margin of a sandy field between Tidmarsh and Bradfield.

4. **Kennet.** On a dry bank near Stock Cross Common.

It is cultivated in gardens as a salad.

V. carinata is recorded for the counties of Oxford, Surrey, and Wilts.

V. rimosa, Bast. in Desv. Journ. de Bot. iii. (1814) 20.

V. Auricula, DC., Fl. Fr. Suppl. 492 (1815). *Fedia Auricula*, Mert. & Koch, Deutsch. Fl. i. 400.

Top. Bot. 217. Syme, E. B. iv. 241, t. 671. Nyman, 339. Fl. Oxf. 154. Colonist. Agrestal. Cultivated fields, very local. A. June-July.

First found in Berkshire by Miss Fry, and by Mr. G. H. Morrison in 1890.

1. **Isis.** Near Cumnor in cornfields, *Morrison*.

2. **Ock.** Near Blewbury.

3. **Pang.** Near Compton, *Miss Fry*. Clover-field near Basildon.

5. **Loddon.** Cornfields each side of Penny's Lane, *Stanton*. In ditch near Lord Downshire's gate-entrance to Easthampstead Park, *Rev. G. R. Bullock-Webster*.

V. rimosa is recorded for all the bordering counties except Bucks.

V. dentata, Poll. Hist. Pl. Palat. i. 30 (1776).

Valeriana locusta, *dentata*, Linn. Sp. Pl. 33. *Valerianella Morisonii*, DC., Prod. iv. 627. *Fedia dentata*, Vahl, Enum. ii. 20.

Top. Bot. 217. Syme, iv. 243, t. 672. Nyman, 339. Fl. Oxf. 154.

Colonist. Agrestal. Cultivated fields, more frequent on calcareous

soils, but not confined to them. Not uncommon and widely distributed. A. May-September.

First record. *Valeriana dentata* (without locality), Mr. T. B. Flower in *Robertson's Env. of Reading*, 1843.

1. **Isis.** Cumnor, *Fl. Oxf.* Idstone. Shrivenham. Appleton.
2. **Ock.** Shippon. Boar's Hill. Radley. Cothill. Didecot. Challow. Wantage. Blewbury. Wallingford. Lowbury. Cholsey. Aston Tirrel. Upton. Lockinge. Tubney. Kingston Bagpuze.
3. **Pang.** Sulham, *Tufnail*. Streatley. Basildon. Pangbourn. Tilehurst. Bradfield. Bucklebury. Frilsham. Yattendon. Compton. East Ilsley. Aldworth.
4. **Kennet.** Elcot, *Reeks*. Padworth. Englefield. Hungerford. West Ilsley. Lambourn. Farnborough. Donnington. Inkpen.
5. **Loddon.** Windsor, *Everett*. Wargrave, *Britt. Contr.* Remenham, *Stanton*. Near Lord Downshire's entrance-gate, Easthampstead, *Bullock-Webster*. Bowsey Hill, *Melvil*. Early. Hurst. Maidenhead. Bisham. Cookham. Sonning.

Var. *DASYCARPA* (Stevens sub *Fedia*, Asch. Fl. Brand. 282. *V. mixta*, Duf. Hist. Valér. 58, t. 3, f. 6. The hairy-fruited variety is not uncommon; I have it noted for Boar's Hill, Shippon, Cothill, Blewbury, Compton, Aldworth, Bucklebury, Padworth, Twyford, Maidenhead, &c.

V. dentata occurs in all the bordering counties.

DIPSACEAE, B. Juss. Hort. Trianon (1759).

DIPSACUS, Linn. Gen. n. 107 (Tournefort, Inst. t. 265).

D. sylvestris, Huds. Fl. Angl. 49 (1762), and of C. B. Pin. 385. *Teasel*.

D. fullonum, var. a, Linn. Sp. Pl. 97 (1753).

Top. Bot. 218. Syme, E. B. iv. 245, t. 674. Nyman, 345. Fl. Ox. 156. Native. Septal. Damp hedges and roadsides, wet woods. Common on clayey soil throughout the county. B. July-September.

First record. Sonning, Mr. S. Rudge, in *Herb. Brit. Mus.* 1800. *D. sylvestris*, Dr. Noehden, *Mavor's Agr. Berks*, 1809.

The Teasel is too widely spread and too conspicuous a plant to need the special mention of localities; it is figured in a picture of the Loddon in *Our River* by Mr. G. D. Leslie. I have seen it growing on a mud-topped wall in Appleford.

D. sylvestris occurs in all the bordering counties.

D. pilosus, Linn. Sp. Pl. 97 (1753). *Shepherd's Rod*, *Small Teasel*.

Virga pastoris, Lobel (1570).

Top. Bot. 219. Syme, E. B. iv. 248, t. 676. Nyman, 345. Fl. Ox. 156. Native. Septal. Damp hedgerows, shady banks, and sides of streams.

Local and rather rare. P. July-September.

First record. *D. pilosus*, Sonning Lane, Mr. S. Rudge, in *Bot. Guide*, 1805, and *Herb. Brit. Mus.* 1800.

2. Ock. About Besilsleigh, *Britt. Contr.* Marcham.

3. Pang. Stanmore, *Hewett's Hist.* Unwell Wood, *Lawson*, in *Herb. Oxf.*

4. Kennet. Great Shefford, *Palmer*. Beedon Wood, *Miss E. Buckland*. Pingewood, near Grazely, *Holland*. Silchester. Weston.

5. Loddon. Sonning Lane, *Rudge*. (Still there in 1896.) Near White Waltham Church, *Hurst MSS.*, and near Windsor, 1833. *Gordon MS.* in *New Bot. Guide*. Near Ruscombe.

D. pilosus occurs in all the bordering counties. In Bucks it is found in Clivedon woods near the river.

SCABIOSA, Linn. Gen. n. 108 (Tournefort, Inst. t. 263, 264).

S. Succisa, Linn. Sp. Pl. 98 (1753). *Devil's Bit Scabious*.

Succisa glabra, C. B. Pin. 269. *S. pratensis*, Moench, Meth. 489. *Morsus Diaboli*, Ger. Em. 726.

Top. Bot. 219. Syme, E. B. iv. 250, t. 677. Nyman, 345. Fl. Oxf. 155.

Native. Pratal. Pastures, moist woods, heaths, &c. Common and generally distributed, but more frequent in stiff soil. P. June-August.

First record. *S. succisa*, *Mavor's Agr. Berks*, 1809.

In damp woods, such as Fence Wood, Cothill Marsh, &c., the plant becomes much taller, glabrous, and with the cauline leaves dentately cut. It would appear to be the var. *glabrata* (Schott. in Roem. et Schult. Syst. Veg. iii. 61, as a species). The hairy plant is var. *hispidula*, Peterm. Fl. Lips. 119.

The marsh-ditches by the railway near Abingdon and the fields in the neighbourhood afford great quantities of this plant.

The flowers are normally purplish blue, but sometimes they occur of a dingy white, and rarely of a dull red colour.

Scabiosa Succisa occurs plentifully in all the bordering counties.

In Hooker's *Student's Flora* the calyx bristles are said to be four in number, but I find them as frequently with five; they vary on the same head.

S. Columbaria, Linn. Sp. Pl. 99 (1753). *Small Field Scabious*.

Scabiosa minor, sive *Columbaria*, Gerard, 582.

Top. Bot. 219. Syme, E. B. iv. 251, t. 678. Nyman, 343. Fl. Oxf. 155.

Native. Pascual. Dry calcareous pastures, chalk downs, railway banks, &c., evincing a decided preference for limestone or chalk.

On the grassy downs of the latter formation it is a specially characteristic feature. Locally abundant. P. June-September.

First record. Sonning, Mr. S. Rudge, in *Herb. Brit. Mus.* *S. columbaria*, *Russell's Cat.* 1839

1. Isis. Buckland, *Russell*. Ashbury. Idstone. Cumnor.

2. Ock. Happy Valley on the Boar's Hill Range, *Boswell*, in *Fl. Oxf.*

Dry Sandford. Cherbury Camp. Cothill. Frilford. Radley. Very abundant all along the chalk escarpment from Uffington and Compton Beauchamp to Moulsoford. On the chalk outliers known as the Wittenham Clumps, and by the railway at Didcot.

3. Pang. Ilsley, &c., *Hewett's Hist.* Remarkably common about Beedon, *W. M. Rogers*. Unwell Wood, *Lawson*, in *Herb. Oxf.* Very common on all the grassy downs in the district and on the grassy borders of woods. On the exposed downs it is much dwarfed, and is the sub-var. *pumila*, Coss. et Germ. Fl. Par.
4. Kennet. Lane leading to North Heath and other places, *Russell's Cat.* 1839. An abundant plant of the grassy chalk downs on both sides of the Kennet valley, being found on the summits of the White Horse Hill and Gibbet Hill.
5. Loddon. Sonning, *Rudge*, 1800. Frequent about Park Place, Remenham, &c., *Stanton*. Plentiful near Bisham and near Quarry Wood, near the Chalk-pit at Wargrave, in the meadows near Hurley. On gravel near Maidenhead and Bray. White-flowered forms have been noticed near Purley and at Letcombe.

A form with sub-entire leaves was observed at Sulham which is worth further study.

S. Columbaria occurs in all the bordering counties.

S. arvensis, Linn. Sp. Pl. 99 (1753). *Field Scabious*.

Trichera arvensis, Schrad. Cat. Sem. Hort. Gott. (1814). *Knautia arvensis*, Coult. Dips. 29.

Top. Bot. 220. Syme, E. B. iv. 252, t. 679. Nyman, 347. Fl. Ox. 156. Native. Agrestal. Cultivated fields, hedge-banks. Common and generally distributed, but more partial to sandy soil. P. June-August.

First record. *S. arvensis*, *Mavor's Agr. Berks*, 1809.

The Field Scabious is too frequent and too widely distributed to need special localities being given. It contrasts beautifully with the yellow corn.

White-flowered forms have been noticed near Shippon, near Upton, near Twyford, and at Shottesbrooke.

The form with leaves entire, or nearly so, is the var. **INTEGRIFOLIA** (Roth, Tent. Fl. Germ. ii. 164, as a species), which has been seen at South Hinksey, at Wantage, near Risely, and near Loddon Bridge.

A form with more deeply cut leaves than the type has been noticed about Cumnor, probably the var. *pinnatisecta* (Coss. et Germ. Fl. Par. 373) of *Knautia arvensis*.

S. arvensis occurs plentifully in all the bordering counties.

COMPOSITAE, Adans. Fam. ii. 103 (1763).

CARDUACEAE, Neck. Act. Ac. Theod. Pal. ii. 465 (1770).

CICHORACEAE, B. Juss. Hort. Trianon (1759).

EUPATORIUM, Linn. Gen. n. 842 (Tournefort, Inst. t. 259).

E. cannabinum, Linn. Sp. Pl. 838 (1753). *Hemp Agrimony.*

E. Cannabinum mas, Ger. Em. 711.

Top. Bot. 250. Syme, E. B. v. 121, t. 785. Nyman, 396. Fl. Oxf. 169.

Native. Paludal, &c. Marshes, wet woods, stream-sides. Not unfrequent and widely distributed, especially in the wooded portion of the Thames Valley. It ascends to 700 feet in Riever Wood, where it is plentiful, and is a conspicuous feature of the Kennet Valley. P. July-September.

First record. *E. cannabinum*, Dr. Noehden, *Mavor's Agr. Berks*, 1809.

Sometimes the stem leaves are undivided, when it is the var. *IN-DRIVISUM*, DC. Prod. v. 180, but our plants are not, I believe, identical with *E. corsicum*, Reg., which is by some authors considered to be synonymous.

E. cannabinum, for which detailed localities are unnecessary, occurs in all the bordering counties.

SOLIDAGO, Linn. Gen. n. 859 (Vaill. 1720).

S. Virgaurea, Linn. Sp. Pl. 880 (1753). *Golden Rod.*

Virga aurea vulgaris, Park. 542. *Virga aurea*, Gerard, 348.

Top. Bot. 255. Syme, E. B. v. 113, t. 778. Nyman, 387. Fl. Oxf. 167.

Native. Ericetal, &c. Woods, thickets, and heaths. Very rare in the northern part of the county, but locally common in the south-west and in the heathy portion of the central part of the county. It evinces a distinct partiality for sandy or gravelly soil. P. July-September.

First record. *Golden Rod*. In Chilsley woods, two miles from Oxford, it grows abundantly, *MS. in Lyle's Herball*, 1660. *Hieracium Pulmonaria dictum angustifolium*. Found in an old Roman Camp at Sidmonton not far from Newberry, Ray, Syn. 45, 1690, but the locality is in Hampshire. Near Oxford [probably Boar's Hill], *Sir Jos. Banks, in Herb. Brit. Mus.* 1760.

2. *Ock*. Childswell Copse, *MS. in Lyle*. (Still there.)

3. **Pang**. Cold Ash Common, *Russell's Cat*. Streatley, *Pamplin*. Heath Wood, near Bradfield. Hermitage. Oare. Oarebury Hill Wood. Fence Wood.

4. **Kennet**. Mortimer, *Tufnail*. Brimpton. Inkpen. Greenham Common. Sandleford. Enborne. Hampstead Marshall. Aldermaston. Silchester. Snelsmore. Wickham, &c.

5. Loddon. Bulmarsh, *Rudge*. Wellington College, Penny. Ambarrow. Finchampstead. Sandhurst. Long Moor. Bagshot. Easthampstead. Crowthorn. Sunningdale. Sunninghill. Windsor Great Park. Farley Hill, &c.

A plant from Snelsmore had small oval sub-entire stem leaves. Another woodland form with broad stem leaves is the var. *LATIFOLIA*, Koch, Syn. Fl. Germ. 355 (1837).

S. Virgaurea occurs in all the bordering counties; but in Oxfordshire it is very local.

BELLIS, Linn. Gen. n. 864 (Tournefort, t. 280).

B. perennis, Linn. Sp. Pl. 886 (1753). *Daisy*.

B. minor sylvestris, Gerard, 510 (1597).

Top. Bot. 259. Syme, E. B. v. 104, t. 772. Nyman, 390. Fl. Oxf. 167. Native. Pascual. Fields, meadows, &c. Abundant and widely distributed. P. January–December.

First recorded in *Russell's Cat.* 1839, and by Mr. G. G. Mill, in *Phyt.* 987, 1843.

The red-flowered plant is var. *colorata*, Peterm. Fl. Lips. 619.

Bellis perennis occurs plentifully in all the bordering counties.

ASTER, Linn. Sp. Pl. Gen. n. 858 (Tournefort, Inst. t. 274).

***A. PANICULATUS**, Lam. Enc. Méth. i. 306 (1783). *Michaelmas Daisy*.

A North American alien, established by the sides of canals and brooks and in waste places. Rare. P. August–October.

2. **Ook**. This species occurs in several situations about Oxford, see Fl. Oxf. 166. It is quite established in Berkshire along the Abingdon Road between Folly Bridge and the Railway Bridge, by a watery ditch-side.

The late Prof. Asa Gray named my specimens.

****A. NOVI-BELGII**, Linn. Sp. Pl. 877 (1753). Fl. Oxf. 166. Nyman, 387.

A North American alien, found as a garden escape in waste places about Oxford and near Reading. I think it is this species which occurs near Sandhurst, but I have not seen it in flower.

****A. LAEVIS**, Linn. Sp. Pl. 876 (1753). Bot. Register, t. 1500 (1832). Fl. Oxf. 166.

A North American alien, of which a specimen collected by *Mr. S. Rudge* about 1800 from Park Place Wood, labelled *A. puniceus*, Linn. in *Herb. Brit. Mus.*, is referred by Prof. Asa Gray to this species. See *Journ. Bot.* (1882) 83.

****HELIANTHUS TUBEROSUS**, Linn. Sp. Pl. 905 (1753). *Jerusalem Artichoke*.

Occurs as a casual on rubbish heaps and occasionally by roadsides, as at Aston, Ferry Hinksey, Dry Sandford, &c.

ERIGERON, Linn. Gen. n. 855 (*Conyzoides*, Dill. Gen.).

***E. CANADENSE**, Linn. Sp. Pl. 863 (1753). *Canadian Fleabane*.

Comp. Cyb. Br. 533. Syme, E. B. v. 107, t. 773. Nyman, 389.

Alien. Introduced from North America, occurring in waste ground on railway ballast and gravel-pits. A. July–September.

First record. Near Marcham, *Mr. F. Walker's MS.* about 1876.

2. **Ock.** Marcham, *Walker*. Not seen by me.

5. **Loddon.** In gravel-pits, and by the railway near Maidenhead (the author in *Rep. Bot. Exch. Club*, 1893), whence it will probably spread rapidly.

On record for Surrey and Hampshire. I have also seen it in Buckinghamshire, by the railway near Maidenhead.

E. acre, Linn. Sp. Pl. 863 (1753). *Blue Fleabane*.

Conyza Coerulea acris, Ger. Em. 484. *Tinctorius flos alter*, Tragus.

Top. Bot. 254. Syme, E. B. v. 108, t. 774. Nyman, 389. Fl. Oxf. 167.

Native. Glareal. Dry pastures, railway-banks, and sometimes on wall-tops. Locally abundant, but absent from considerable tracts of the county. A. or B. May–October.

First record. *Erigeron acris*, from the neighbourhood of Marlow, by Mr. G. G. Mill in *Phyt.* i. 987, 1843, and by Mr. T. B. Flower in *Robertson's Env. of Reading*, 1843.

1. **Isis.** Pusey and Buckland, *Boswell*. Carswell, *Miss M. Niven*.

2. **Ock.** Chilton Field, *Hewett's Hist.* 1844. Marcham, *Walker*. Cothill. Frilford. Dry Sandford. Appleford.

3. **Pang.** Streatley, *Boswell*. Tilehurst, *Tufnail*. Abundant at Hermitage. Sulham. Curridge. Moulsoford. Frilsham.

4. **Kennet.** Snelsmore. Newbury. Theale. Southcote.

5. **Loddon.** Sonning, *Melville*. Wellington College, *Penny*. Park Place, Rose Hill, Remenham, *Stanton*. Walls of Windsor Castle, *Dyer in Phyt.* (1861) 367. Old Windsor, *Bolton King*. Maidenhead. Bracknell. Sandhurst. Wargrave. Ambarrow. Long Moor. Finchampstead. Abundant on railway-banks between Ascot and Bracknell. Ascot, specimens two feet high. Binfield. Plentiful in Sonning Cutting, and on an old brick wall in the village. Near White Waltham. Near Early. Ruscombe. Arborfield.

Erigeron acre is found in all the bordering counties.

FILAGO, Linn. Gen. n. 891 (Loefling).

F. germanica, Huds. Fl. Angl. 328 (1762). Linn. Sp. Pl. ed. 2, 1311 (1762). *Common Cudweed*.

Gnaphalium germanicum, Linn. Sp. Pl. 857 (1753), and Sm. E. B. t. 946.

Filago canescens, Jord. Obs. Pl. Crit. iii. 202 (1846). *Filago*, Dodoens.

Gnaphalium vulgare, Matth.

Top. Bot. 253. Syme, E. B. v. 67, t. 736. Nyman, 384. Fl. Oxf. 165.

Native. Agrestal, ericetal. Cultivated fields, heaths, railway-banks, &c. Locally common; it appears to be partial to sandy soil, but is not confined to it. A. June–September. Too common to need a detailed list of localities.

First record. Sonning, Mr. S. Rudge, in *Herb. Brit. Mus.* 1800. Pub-

lished as *Filago germanica*, Dr. Noehden, in *Mavor's Agr. Berks*, 1809. On Boar's Hill it was so abundant in the late autumn of 1894 as to be noticeable for a considerable distance.

Var. *LAXA*, mihi = *F. canescens*, var. *laxa*, Corbière, Nouv. Fl. Normandie, 330 (1893), differs from the type by being more diffuse in habit, branching at the base, and having laxer leaves, thus simulating *F. spathulata*. It occurs by roadsides, &c., as at Padworth, on Boar's Hill, near Newbury, &c.

F. germanica occurs in all the bordering counties.

F. apiculata, G. E. Smith in Phyt. ii. (1846) 575.

F. lutescens, Jord. Obs. Pl. Crit. iii. 201 (1846). *F. germanica*, var. *lutescens*, Gren. & Godr. Fl. Fr. ii. 192.

Top. Bot. 253. Syme, E. B. v. 68, t. 737. Nyman, 384. Fl. Oxf. 166.

Native. Glareal. Dry sandy fields, and railway-banks on sandy soil, to which it appears limited. Very local. A. July–September.

First record. Wargrave, Mr. J. C. Melvill in *Britt. Contr.* 1871.

4. Kennet. In a sandy field near Padworth, the author in *Rep. of Bot. Exch. Club*, 1892.

5. Loddon. On road between Hare Hatch and Crazey Hill, near Wargrave, *Melvill*. Plentiful on the east side of Sonning Cutting, growing with *F. minima* and *F. germanica*, and well answering to the original description. Specimens from this locality were sent to the *Bot. Exch. Club* in 1890 by the author. Ambarrow. Finchampstead.

F. apiculata is recorded for Surrey, Hants, and Oxfordshire.

In the *Index Kewensis*, *F. apiculata* is made synonymous with *F. germanica*, while specific rank is given to *F. spathulata*.

F. spathulata, Presl, Delic. Prag. 99 (1822).

Top. Bot. 253. Syme, E. B. v. 69, t. 738. Nyman, 384. Fl. Oxf. 165.

Native. Glareal, &c. Dry fields and roadsides, not only in the grass, but also on the bare margins. Chiefly on calcareous soil. Very local and not common. A. July–September.

First record. Wootton and Tubney, the author in *Rep. of Bot. Rec. Club*, 1881.

2. Ock. Wootton and Tubney, l.c. Dry Sandford. Cothill. Frilford. Besilsleigh. Cumnor Hurst.

5. Loddon. Wargrave, *Melvill*. Coleman's Moor. *Rev. A. H. Melvill*. Stubbing's Heath. Near Knowl Hill.

F. spathulata is recorded for Bucks, Oxfordshire, Hants, and Surrey.

F. minima, Fries, Nov. Fl. Suec. 268 (1828), cf. 99 (1822). *Least Cudweed*.

F. montana, Sibth. Fl. Oxon. 262, not of Linn. *Gnaphalium minimum*,

Sm. Fl. Brit. ii. 873, and of Lobel, 566. *G. montanum*, Huds. Fl. Angl. ii. 362 (1778). *F. minor*, Gerard, 517.

Top. Bot. 253. Syme, E. B. v. 70, t. 739. Nyman, 385. Fl. Oxf. 166. Native. Ericetal. Dry sandy fields, heaths, and commons, in sunny places. Locally abundant. A. June–September.

First record. *F. minima*, but without locality, by Mr. G. G. Mill in *Phyt.* i. 987, 1843, and in *Mr. Baxter's MSS.* from Boar's Hill, probably of an earlier date.

2. Ock. Boar's Hill. Tubney, *Baxter, MSS. in Fl. Oxf.* Marcham, *Walker.* Frilford. Cumnor Hurst. Near Besilsleigh.
3. Pang. Cold Ash Common. Oare. Curridge. Bucklebury.
4. Kennet. Greenham Common, *Weaver.* Burghfield. Aldermaston. Silchester. Snelsmore. Wickham. Mortimer. Crookham. Padworth. Common on the heaths in this district.
5. Loddon. Near Marlow, *Mill.* Wellington College, everywhere, *Penny.* Sandhurst. Bagshot. Ambarrow. Finchampstead. Risely. Sunninghill. Sunningdale. Bracknell. Binfield. Twyford and Sonning Railway-cutting. Bearwood. Near Coleman's Moor. Windsor Great Park, &c. Common on the sandy ground in this district.

F. minima does not appear to be recorded for E. Gloucestershire.

F. GERMANICA × *MINIMA* ? Specimens of a plant which I gathered on Boar's Hill were sent to Dr. Focke with the name queried as above. He replied : 'I am not sure about your curious *Filago*. In the parts of the flower I see no difference from *germanica*, but the disposition of the flower heads and the whole habit is very anomalous. I did not succeed in finding the pollen grain in the dry specimens, but this kind of research may afford us a clear evidence when applied to the living plant.' The plant occurred in scattered patches amid a dense and luxuriant growth of the two supposed parents. Mr. Arthur Bennett says, he 'could see no sign of the hybrid ; it is a small form of *germanica*, of late growth, or on a very dry soil.' The Rev. W. R. Linton also was unable to consider it a hybrid ; 'as it produces good fruit he would call it a form or possibly a variety.' The Rev. E. S. Marshall 'thinks the suggested origin a very likely one indeed.' That it is not a form caused by the 'lateness of the season' or the 'dryness of the soil,' is proved by the fact that it was accompanied by a profuse and luxuriant growth of the ordinary plant. There were about a dozen patches of this form scattered over the field as if the seeds of a single plant had given rise to each of the patches. The hybrid origin appears to me to be very probable.

It was distributed through the *Bot. Exch. Club* in 1894, see *Report*, p. 451.

[*F. gallica*, Linn. Sp. Pl. ed. 1, add. (1753). Syme, E. B. v. 71, t. 740. Nyman, 384.

Ambiguity or error. 'Has occurred in Berkshire,' Syme, E. B. v. 71. Mr. F. J. Hanbury tells me it is not represented from Berkshire in the Boswell-Syme Herbarium. The Wellington College plant so named is, according to Mr. Britten, *Gnaphalium sylvaticum*.

F. gallica was gathered by Dr. Lightfoot near Iver, Bucks, and there is a specimen in the British Museum from that locality; it is possible that Buckinghamshire may have been confounded with Berkshire by Dr. Syme.]

ANTENNARIA, Gaertn. Fruct. ii. 410, t. 167 (1791).

A. dioica, Gaertn. l. c. *Mountain Everlasting*.

Gnaphalium dioicum, Linn. Sp. Pl. 850 (1753).

Top. Bot. 252. Syme, E. B. v. 78, t. 747. Nyman, 383. Fl. Oxf. 165.

First record. *Gnaphalium dioicum*, Mr. J. Lousley in *Russell's Cat.* 1839.

2. Ock. On the Blewbury Downs, *Lousley*, l. c. (?)

3. Pang. On the hills at Hampstead Norris, *Lousley*, l. c. (?)

4. Kennet. I seem to remember gathering this on the Ridgeway between Stockcross and Peewit Common, *Reeks in Britt. Contr.* 1871.

I have never seen this plant in Berkshire, but since it has been found on the northern escarpment of the Chalk near Watlington, in Oxfordshire, we might expect the plant to occur in Berkshire in a similar situation. It may be pointed out that Mr. Lousley, who records it from two localities, had not a critical knowledge of species, and that *G. sylvaticum* is not included in his list. He may have mistaken them. Mr. Reeks' record, which may have been a trick of memory, has not been confirmed, so that the occurrence of this plant in Berkshire awaits corroboration. Of the counties bordering Berkshire it is recorded for two localities in Oxfordshire, in one of which it is extinct, and for one (Swarraton) in Hampshire.

GNAPHALIUM, Linn. Gen. n. 850 (Vaill. A. G. 1719).

G. uliginosum, Linn. Sp. Pl. 856 (1753). *Black-headed Cudweed*.

G. medium, C. B. Pin. 263. *G. vulgare*, Gerard, 515.

Top. Bot. 253. Syme, E. B. v. 72, t. 741. Nyman, 382. Fl. Oxf. 164.

Native. Inundatal. Damp places, roadsides where water has stagnated. pond-sides, cultivated fields, &c. Common and generally distributed. A. July-October.

First record. *Filago arcensis*, moist situations, Dr. Noehden, in Mavor's Agr. Berks, 1809. *Gnaphalium uliginosum*, Russell's Cat. 1839.

Too abundant to need an enumeration of localities.

Var. *PILULARE* (Wahl. Fl. Lapp. 215, as a species), Koch, Syn. Fl. Germ. ed. 2, 400 (1843), which is probably identical with the var. *lasiocarpum*, Ledeb. Fl. Ross. ii. 609, 1844-6, described as having '*achenis hispidulis*.' The variety differs from the type in having hair-

like papillae on the fruit and is apparently a rare form, as I have only noticed it in moist sandy soil on Boar's Hill [and in Oxfordshire near Headington Wick]. A form of the plant with green glabrous foliage occurs in northern Europe, but I have not noticed it in Britain.

G. uliginosum occurs in all the bordering counties.

G. sylvaticum, Linn. Sp. Pl. 856 (1753). *Heath Cudweed*, *English Live-long*.

G. rectum, Sm. E. B. t. 124, and of J. Bauhin, Hist. iii. 160. *G. anglicum*, Gerard, 515.

Top. Bot. 253. Syme, E. B. v. 74, t. 743. Nyman, 382. Fl. Oxf. 165.

Native. Ericetal. Dry heathy pastures, &c. Local. P. July–October. First record. Bagley Wood, *Mr. Baxter in Herb. Oxf.*, about 1830. Published by Mr. Pamplin in *Phyt.* v. 155, 1854.

2. **Ock**. Bagley Wood, *Baxter*. Near Sheepstead House, *Mrs. Davis*. Marcham, *Walker*. Uffington, *Bellamy*. Boar's Hill. Pickett's Heath. Frilford.

3. **Pang**. Streatley, *Pamplin*, l.c. (I have not seen it here). Cold Ash Common. Near Curridge.

4. **Kennet**. Greenham Common. Mortimer. Burghfield. Padworth.

5. **Loddon**. Near Wellington College, under the name of *F. gallica*, *Well. Coll. Herb.* Bulmarsh, *Tufnail*. Warren Row Common, *Stanton*. Sandhurst. Ambarrow. Abundant on Bagshot Heath. Farley Hill. Windsor Park, near Virginia Water.

G. sylvaticum is recorded for all the bordering counties.

INULA, Linn. Gen. n. 860 (*Helenium*, Morison, &c.).

***I. Helenium**, Linn. Sp. Pl. 881 (1753). *Elecampane*.

Helenium, Pliny. *H. vulgare*, C. B. Pin. 276. *Enula*, Turner.

Top. Bot. 257. Syme, E. B. v. 97, t. 766. Nyman, 391. Fl. Oxf. 167.

Denizen. Pascual. Pastures and hedge-sides. Very rare. P. July–August.

First record. *Elecampane* grows plentifully on a dry pasture close, upon Botley Hills, also upon Mr. Tudballs house, beyond Hinksey, *MS. in Lyte's Herball*, 1660. Published in *Walker's Flora*, 1833.

1. **Isis**. Near a footpath leading from the new to the old road to Ensham, about 3 miles from Oxford, *Walk. Fl.* 1833.

2. **Ock**. Botley Hills. Beyond South Hinksey, *MS. in Lyte* (now extinct). Observed by Mr. F. Walker in the neighbourhood of Tubney, but not seen by me in Berkshire.

I. Helenium is recorded for all the bordering counties except Bucks and E. Gloucestershire. It occurs in quantity, and to all appearance in a native situation, in Oxfordshire, near Woodperry.

I. *Conyza*, DC. Prod. v. 464 (1836). *Ploughman's Spikenard*.

Conyza squarrosa, Linn. Sp. Pl. 861 (1753). *C. major vulgaris*, C. B. Pin. 265.

Top. Bot. 257. Syme, E. B. v. 99, t. 767. Nyman, 393. Fl. Oxf. 168.
Native. Septal, &c. Roadsides and hedge-banks, heathy places. Local.
Evinced a decided preference for calcareous or sandy soil. P.
July–October.

First record. *Conyza squarrosa*, Dr. Noehden, Mr. Bicheno, *Mavor's Agr. Berks*, 1809.

1. *Isis*. Wytham, very abundant. Near Besilsleigh. Near Buckland.
2. *Ock*. Bagley, *Baxter*. Pusey Wood, *Boswell*. Marcham, *Walker*.
Near Abingdon, *Bicheno*. Lowbury. Tubney. Cothill. Near
Uffington. Jenny Bunting's parlour on Boar's Hill.

3. *Pang*. Hampstead Norris, *Lousley in Russell's Cat*. Streatley,
Pamplin. Moulsoford, *Fl. Oxf*. Sulham, *Tufnail*. Ashampstead.
Pangbourn. Bradfield. Bucklebury. Plentiful by the railway
between Pangbourn and Streatley. Aldworth.

4. *Kennet*. Chieveley. Catmore, uncommon, *W. M. Rogers*. Very
fine specimens at Sheffield.

5. *Loddon*. New Lock, Marlow, *Mill*. Common on the Chalk about
Park Place, *Stanton*. Henniker's Lodge, *Penny*. Loddon Bridge,
Tufnail. Cookham, *Everett*. Near Wellington College Station.
Stubbing's Heath. Hurley. Maidenhead. Quarry Wood.

The young plant before flowering bears much resemblance to the
young states of the Foxglove.

I. Conyza, which is much more frequent in Berkshire than the above
records show, is found in all the bordering counties.

PULICARIA, Gaertn. Fruct. ii. 461 (1791).**P. *dysenterica*, Gaertn. l. c. *Fleabane, Middle Elecampane, Mavor*.**

Inula dysenterica, Linn. Sp. Pl. 882 (1753). *Conyza media*, Ger. Em. 482.
Top. Bot. 258. Syme, E. B. v. 102, t. 770. Nyman, 394. Fl. Oxf. 168.
Native. Paludal. Marshes, wet ditches, and the sides of roads.

Locally common and widely distributed, showing as decided
preference for clayey soil as *Inula Conyza* does for calcareous or
sandy ground. P. July–September.

First record. *Inula dysenterica*, Dr. Noehden, *Mavor's Agr. Berks*, 1809.

Var. *LONGIRADIATA*, Druce in Midl. Nat. (1887) 78, with much
longer and less contiguous florets of the ray, occurs on Boar's Hill near
the brickyards, and in Wytham Wood, &c. In the *Report of the Bot.*
Record Club for 1886, p. 129, Dr. F. Arnold Lees, describing it under the
name of var. *pulchella*, speaks of it as 'a handsome form, less cottony
than the type, with beautiful long-rayed flowers.' Although the

extreme state is markedly different from the short-rayed form in which the ray florets are closely contiguous, intermediate forms are found, so that it can be scarcely called a good variety. It may be remarked however that all the plants in one station remain pretty constant, but that the permanence of the extreme form has not been tested by cultivation. Specimens from Wytham were distributed by me through the *Bot. Exch. Club* in 1887. The beautiful golden yellow flowers contrast well with the sombre purple of *Mentha aquatica*, a plant frequently associated with *I. dysenterica*. Both the Scarlet Admiral and Common Blue Butterflies are very fond of this species, which occurs in all the bordering counties.

P. vulgaris, Gaertn. l. c. *Small Fleabane*.

P. Pulicaria, Karst. *Inula Pulicaria*, Linn. Sp. Pl. 882 (1753). *I. uliginosa*, Sibth. Fl. Oxon. 256 (1794). *Conyza minima*, Gerard, 390.

Top. Bot. 259. Syme, E. B. v. 103, t. 771. Nyman, 394. Fl. Oxf. 169. Native. Inundatal. Margins of ponds. Very rare. A. July–August. First record. *Inula Pulicaria*. Plentiful in the parishes of Burghfield and Mortimer, *Dr. Beeke in lit.* 1799.

4. Kennet. Burghfield. Mortimer, *Dr. Beeke*. (I have not seen it here.)

5. Loddon. Bulmarsh Heath, *Rudge in Herb. Brit. Mus.* 1800. Near Wellington College (perhaps in Hants). Wokingham, *Penny*. Between Bray and Holyport. Near Sandford Mill.

P. vulgaris, which is one of our rarer plants, is not recorded for Bucks or Gloucestershire; it appears to be a decreasing species.

[**XANTHIUM STRUMARIUM**, Linn. Sp. Pl. 987, is recorded as a casual plant for Surrey and Hants, and **X. spinosum** has been seen by Mr. W. Clarke in Wilts.]

BIDENS, Linn. Gen. n. 840 (Tournefort, Inst. t. 262).

B. cernua, Linn. Sp. Pl. 832 (1753). *Nodding Bur Marigold*.

Verbesina, Gesner. *Bidens*, folio non dissecta, Caesalp.

Top. Bot. 248. Syme, E. B. iv. 93, t. 763. Nyman, 348. Fl. Oxf. 156. Native. Paludal. Pond-sides and wet places. Rare north of Reading, and possibly absent from the Isis and Ock districts. Common in the Loddon district. A. or B. June–September.

First record. Wash Water, *Russell's Cat.* 1839.

[1. Isis. Mr. Boswell records it for Eynsham in Oxfordshire; it may be found on the Berkshire side of the stream, but I have not yet met with it.]

2. Ock. Marked as having been seen by Mr. F. Walker in either Marcham, Appleton, or Tubney, but I have not been able to confirm it.

3. **Pang.** Near Tilehurst.

4. **Kennet.** Wash Water, *Russell, l. c.* By the riverside half a mile west of Reading, *Lees, Rep. of Bot. Rec. Club, 1883.* Sandleford, *Weaver.* By the Emborne Stream. Knight's Bridge. Greenham Common. Aldermaston. Mortimer West End Pond. Theale. Beenham. Southcote.

5. **Loddon.** Wellington College, *Penny.* Remenham and Aston, abundant, *Stanton.* Sonning meadows, *Tufnail.* Arborfield, *Taylor.* Coleman's Moor. Blackwater. Sandhurst. Between Loddon Bridge and Wokingham. Winkfield. Holyport. East-hampstead. Risely. Finchampstead. Near New Mill. Thatcher's Ford. Common about Hurst Green. Wokingham. Early. Wargrave. Ruscombe. Windsor. Shottesbrooke, &c.

Var. **RADIATA**, Gray, Nat. Arr. ii. 448 (1821) = *Coreopsis Bidens*, Linn. Sp. Pl. 908, is of very rare occurrence; it occurred near Hurst in a pond by the roadside in 1893, and Dr. F. Arnold Lees found it in Oxfordshire, near Caversham, in 1882.

Bidens minima, Huds. Fl. Angl. 310, the var. *minima*, S. F. Gray, l. c., is only a small state which is often found on the margins of ponds growing with the ordinary form. I noticed it between Hurst, Loddon Bridge, and Wokingham, and near Hurst, when all gradations could be traced between it and the robust plant two feet high. *B. cernua* varies considerably not only in height (from two inches to three feet), but also in hairiness; sometimes the stem is very asperous (*f. rugosa*), at others nearly smooth.

B. cernua does not appear to be recorded for E. Gloucestershire.

B. tripartita, Linn. Sp. Pl. 831 (1753). *Bur Marigold.*

Top. Bot. 249. Syme, E. B. v. 94, t. 764. Nyman, 348. Fl. Oxf. 157. Native. Paludal. Marshy places, pond-sides, ditches. Frequent in the north of the county, and widely distributed throughout the county in low-lying situations near stagnant water. A. or B. July-September.

First record. Sonning, *Mr. S. Rudge, in Herb. Brit. Mus. 1800.* Published in *Russell's Cat. 1839.*

1. **Isis.** Cumnor. Appleford. Buscot Park. Buckland. Bablock Hythe.

2. **Ock.** South Hinksey, *Baxter, 1827.* Marcham, *Walker.* Uffington, *Bellamy.* Wantage. Plentiful along the Abingdon Road beyond New Hinksey. Radley. Abingdon. Kennington. Shippon. Appleford. Blewbury. Cholsey.

3. **Pang.** Tilehurst, *Tufnail.* Pangbourn.

4. **Kennet.** Bagnor Marsh, *Russell, l. c.* Greenham. Theale. Kintbury. Sandleford. Southcote. Mortimer. Hampstead Marshall. Newbury Wash. Knight's Bridge.

5. Loddon. Aston, abundant, &c., Stanton. Windsor, Everett. Sonning, Rudge. Winkfield. Hurst Green. Waltham. Twyford. Coleman's Moor. Holyport. Bray. Shinford Green. Windsor Park. Virginia Water. Finchampstead. Arborfield. Blackwater. Swinley. Wokingham, &c.

The leaves in this species are usually tripartite, but they are occasionally simple (the var. *INTEGRA*, Koch, in *Linnaea*, xvii. (1843) 44), but probably it is only a state, not a true variety. The stem is sometimes very rough (the *f. rugosa*); the var. *minor*, Wimm. et Grab. Fl. Siles. ii. 218, is an analogous form to the var. *minima* of *B. cernua*. I have seen it at Holyport, &c.

B. tripartita occurs in all the bordering counties.

ACHILLEA, Linn. Gen. n. 871 (Vaill. A. G. 1720).

A. Millefolium, Linn. Sp. Pl. 899 (1753). *Yarrow Milfoil*.

Millefolium terrestre vulgare, Gerard, 914.

Top. Bot. 263. Syme, E. B. v. 57, t. 727. Nyman, 366. Fl. Oxf. 162. Native. Pascual. Pastures, meadows, roadsides, chalk downs, &c.

Very common and generally distributed. P. May–September.

First record. Sonning, with red flowers, Mr. S. Rudge, in *Herb. Brit. Mus.* 1800. *A. millefolium*, Dr. Noehden, *Mavor's Agr. Berks*, 1809.

The Yarrow is one of our commonest species, and exists under several modifications, the most marked of which is a densely pubescent form, the var. *LANATA*, Koch, Syn. Fl. Germ. 373 (1837), which occurs near Bracknell, Snelsmore, &c. The form with deep red flowers I have seen in the meadows near Sonning and Pangbourn, near Radley, and at Marcham, but these forms appear to merge gradually into the type.

A. Millefolium occurs in all the bordering counties.

A. Ptarmica, Linn. Sp. Pl. 898 (1753). *Sneezewort, Goose Tongue*.

Ptarmica vulgaris, Clusius and DC. Prod. v. 23. *Ptarmica*, Gerard, 483.

Top. Bot. 263. Syme, E. B. v. 59, t. 730. Nyman, 364. Fl. Oxf. 161.

Native. Pascual. River-sides, damp meadows, bushy places, &c.

Generally distributed, but not a very abundant plant. P. June–August.

First recorded by Mr. J. Lousley and Dr. Bunny in *Russell's Cat.* 1839.

1. Isis. Bablock Hythe, *Boswell*. Cumnor. Appleton. Longworth. Faringdon. Lechlade. Near Inglesham. Watchfield. Bourton. Buscot. Wytham, &c.

2. Ock. Marcham, *Walker*. In great abundance in field at foot of Cumnor Hurst, *Sister Jane Frances*. West Hagborne Moor. Church Moor, Blewbury, *Lousley, l. c.* South Hinksey. Kennington. Radley. Abingdon. Garston. Didcot. Wantage. Lockinge. Wittenham. Appleford. Wallingford, &c.

3. **Pang.** Fence Wood, *Bunny*. Hampstead Norris, *Lousley*. Cold Ash Common, *W. M. Rogers*. Very luxuriant at Pangbourn. Purley. Moultsford, &c.
 4. **Kennot.** Woodhay Common, *Bunny*, l. c. West Ilsley. Welford. Lambourn. Chilton Foliat. Kintbury. Sandleford. Beenham. Thatcham. Theale. Southcote, &c.
 5. **Loddon.** By the river-side, Marlow, *Mill*. Wellington, *Orasley*. Loddon Bridge, *Tufnail*. Bagshot. Finchampstead. Swallowfield. Wokingham. Ascot. Binfield. Windsor Park. Frogmore. Bray. Cookham. Stubbing's Heath. Wargrave. Early, &c.
- A. Ptarmica* occurs in all the bordering counties.

ANTHEMIS, Linn. Gen. n. 870 (*Chamaemelum*, Tourn. Inst. t. 281).

- A. Cotula**, Linn. Sp. Pl. 894 (1753). *Mather*, *Stinking May-weed*, 'Margs.'
Cotula, Dodoens, Pempt. 258. *Chamaemelum foetidum*, C. B. Pin. 135.
 Top. Bot. 262. Syme, E. B. v. 49, t. 720. Nyman, 362. Fl. Oxf. 161.
 Native. Agrestal. Cultivated fields and waste places. Generally distributed and too abundant in many of our cornfields. A. May-October.

First record. *A. cotula*, Stinking Camomile, Dr. Noehden, *Mavor's Agr. Berks*, 1809.

This plant is detested by those working in the cornfields since it often produces annoying blisters; whether this is due to an acrid principle present in the plant, or is merely caused by the mechanical irritation caused by the achenes, is, I believe, not conclusively proved.

The stubble fields in 1893 were full of the blossoms of this species.

A. Cotula occurs in all the bordering counties.

A. arvensis, Linn. Sp. Pl. 894 (1753). *Corn Chamomile*.

Top. Bot. 261. Syme, E. B. v. 51, t. 721. Nyman, 361. Fl. Oxf. 161.
 Native. Agrestal. Cornfields. Local. Evincing a preference for calcareous or sandy soil. A. May-September.

First record. Botley Pound, *Mr. J. Bennell*, 1812, in *Walk. Fl.* 1883.

1. **Isis.** Botley Pound, *Bennell*. Wytham. Appleton.
2. **Ook.** Wantage, *Dyer*. Foxcombe Hill, *Garnsey*, in *Fl. Oxf.* Frilford. Cothill. Didecot. Lockinge. Blewbury. Upton. Kingston Bagpuze.
3. **Pang.** Bradfield. Moultsford. Streatley. Basildon. East Ilsley. Yattendon. Aldworth. Bucklebury. Tilehurst. Reading. Sulham. Tidmarsh. Purley.
4. **Kennot.** Mortimer, *Tufnail*. Padworth. Upton. Theale. Newbury. Riever Wood. Lambourn. Calcot.
5. **Loddon.** Near Ascot Racecourse, *Watson*. Sonning, *Tufnail*.

Maidenhead. Bray. Windsor. Hurley. Bisham. Wargrave. Twyford. Finchampstead.

Its reclining habit and more pubescent foliage distinguish it from *A. Cotula*.

The plant was most abundant near Purley in 1893 and 1894.

A. arvensis is recorded for all the bordering counties.

A. nobilis, Linn. Sp. Pl. 894 (1753). *Chamomile*.

Chamaemelum Romanum, Gerard, 616.

Top. Bot. 261. Syme, E. B. v. 53, t. 724. Nyman, 359. Fl. Oxf. 160. Native. Ericetal. In the turf of heathy commons. Local and rare.

P. June–September.

First record. *A. nobilis*, Common Camomile, Dr. Noehden, *Mavor's Agr. Berks*, 1809.

3. Pang. Near Bradfield, *Jenkinson*. A probable locality, but I have not seen it there.

4. Kennet. Seen only in the turf of the Vicarage Lawn at Chieveley, *W. M. Rogers*. Mortimer, *Twyndail*. Burghfield. Silchester. Aldermaston. Near Newbury, but here only as a casual.

5. Loddon. Virginia Water, *Trimen*. Knowl Hill, *Stanton*. Near Windsor, *Bolton King*. Included in Well. Coll. List. Early, *Crawley*. Hurst, *Melville*. Risely Common. Bracknell, *the author in Rep. of Bot. Exch. Club*, 1892. Stubbing's Heath. Plentiful and luxuriant near the brickyards at Twyford.

A. nobilis, which is very rare in Oxfordshire, occurs in Bucks, at Napple and Stoke Poges Commons, &c., and in all the other bordering counties except E. Gloucestershire.

****A. tinctoria**, Linn. Sp. Pl. 896 (1753).

Comp. Cyb. Br. 535. Syme, E. B. v. 52, t. 723. Nyman, 358.

Alien. Casual. Waste places. Very rare. P. June–August.

First recorded by the author in *Rep. Bot. Exch. Club*, 417, for 1893.

2. Ock. On waste ground near the railway at Didcot.

5. Loddon. By the railway near Maidenhead.

CHRYSANTHEMUM, Linn. Gen. n. 866 (Tournefort, Inst. t. 280).

C. segetum, Linn. Sp. Pl. 889 (1753), and of Gerard, 604 (1597). *Corn Marigold*.

Top. Bot. 259. Syme, E. B. v. 40, t. 713. Nyman, 370. Fl. Oxf. 162. Native. Agrestal. Cultivated fields on sandy soil. Locally abundant.

A. February–November.

First record. *C. segetum*, *Mavor's Agr. Berks*, 1809.

1. Isis. Carswell, *Miss M. Niven*. Longworth. Appleton. Pusey. Near Great Coxwell. Wytham. Cumnor.

2. Ock. Marcham, *Walker*. Harwell, *Lomax*. Cole's Pits, *Bellamy*. Boar's Hill. Tubney, *Fl. Oxf.* Cothill. Wootton. Near Radley.

- Sunningwell. Wittenham. Brightwell. Moreton. Kingston Bagpuze.
3. Pang. Streatley, *Pamplin*. Hermitage. Near Aldworth. Bucklebury. Tilehurst.
 4. Kennet. Mortimer, *Tufnail*. Newbury, *Russell's Cat*. Padworth. Aldermaston. Silchester. Enborne. Theale. Wickham. Near Calcot, &c.
 5. Loddon. A most luxuriant weed in the fields on the Henley and Maidenhead Road, near Hurley, *Mill*. Windsor, *Bolton King*. Wargrave, *Melville*. Locally abundant at Park Place, *Stanton*. Bisham. Clewer. Bray. Finchampstead. Jouldern's Ford. Farley Hill. Barkham. Binfield. Winkfield. Wellington College, &c.

The flowers, which are among the handsomest of our British Composites, have an odour recalling heliotrope, but also with a certain resemblance to that of *Pyrethrum cinerariaefolium*. The colour contrasts well with the glaucous green foliage.

C. segetum is found in all the bordering counties.

C. Leucanthemum, Linn. Sp. Pl. 888 (1753). *Moon Daisy, Ox-eye.*

Leucanthemum vulgare, Lam. Fl. Fr. ii. 137, and Inst. R. H. 492.

Top. Bot. 259. Syme, E. B. v. 41, t. 714. Nyman, 371. Fl. Oxf. 162.

Native. Pascual. Grass fields, railway-banks, grassy downs, &c.

Abundant and generally distributed. P. April-July.

First record. Sonning, *Mr. S. Rudge*, in *Herb. Brit. Mus.* 1800. Published in *Mavor's Agr. Berks*, 1809.

This plant is one of the most prominent features in our grass fields, and is especially frequent in the less marshy meadows of the Thames. Near Bablock Hythe one specimen was gathered which had 162 expanded heads on it, and some of the flowers measured two and a half inches across.

A form with simple stems clothed with long patent hairs occurred with the type on the railway embankment near Maidenhead, &c. (*f. hirsuta*), probably the var. *uniflorum*, Brébisson, *Flore de la Normandie*, 165.

C. Leucanthemum occurs on walls at Sonning, and plentifully on the ruins of Reading Abbey, and is found in all the bordering counties.

***C. Parthenium**, Bernh. Syst. Verz. Erf. 145 (1800). *Feverfew.*

Matricaria Parthenium, Linn. Sp. Pl. 890 (1753). *Pyrethrum Parthenium*,

Sm. E. B. t. 1231, Fl. Brit. ii. 900. *Parthenium*, Math.

Top. Bot. 260. Syme, E. B. v. 43, t. 715. Nyman, 372. Fl. Oxf. 163.

Denizen or native. Hedge-banks, walls, and waste places. Local.

P. May-August.

First record. Sonning, *Mr. S. Rudge*, in *Herb. Brit. Mus.* 1800. Published as *Matricaria parthenium*, Dr. Noehden, in *Mavor's Agr. Berks*, 1809.

1. **Isis.** Carswell, *Miss M. Niven*.
2. **Ock.** Marcham, *Walker*. Cothill. Didcot. Abingdon.
3. **Pang.** Streatley, *Pamplin*. Hermitage.
4. **Kennet.** Mortimer, *Tufnail*. Padworth. Burghfield. Near Kintbury. Inkpen.
5. **Loddon.** Crazy Hill. Near Holly Cross, *Stanton*. Finchampstead, *Penny*. Wargrave, *Melvill*. Maidenhead. Cookham, *Everett*. Twyford. White Waltham. Hurley. Bourn End. Aston. Arborfield. Jouldern's Ford. Swallowfield. Farley Hill. Whistler's Green. Hurst. Barkham. Risely. Near Thatcher's Ford.

The localities in the Isis, Ock, Pang, and some of those given under the Kennet district, represent plants of garden origin, some of them being var. *flore pleno*.

In some parts of the Kennet, and in many localities in the Loddon district, the *Pyrethrum* has the appearance of being native, since it is found in old hedgerows in considerable quantity, often far removed from gardens or houses.

C. Parthenium is recorded as a more or less naturalized plant from all the bordering counties.

MATRICARIA, Linn. Gen. n. 867 (Tournefort, Inst. t. 231).

M. inodora, Linn. Fl. Suec. ed. 2, 765 (1755). *May-weed*, *Chamomile Goldins*.

Chrysanthemum inodorum, Linn. Sp. Pl. ed. 2, 1253 (1762). *Pyrethrum inodorum*, Sm. Fl. Br. ii. 900. Moench, Meth. 597.

Top. Bot. 260. Syme, E. B. v. 46, t. 717. Nyman, 374. Fl. Oxf. 163. Native. Agrestal. Fields, waysides, and waste places. Generally distributed. A. or B. May–November.

First record. Sonning, *Mr. S. Rudge*, in *Herb. Brit. Mus.* 1800. Published as *Chrysanthemum inodorum*, Dr. Noehden, in *Mavor's Agr. Berks*, 1809.

A discoid form has been seen near Didcot Station on railway ballast. The odour is very different from that of *A. Cotula* or *M. Chamomilla*.

M. inodora occurs plentifully in all the districts of the county, and in all the bordering counties.

M. Chamomilla, Linn. Sp. Pl. 891 (1753). *Wild Chamomile*.

Chrysanthemum Chamomilla, Bernh. Syst. Verz. Erf. (1800) 145. *Chamaemelum*, Gerard, 615.

Top. Bot. 260. Syme, E. B. v. 48, t. 719. Nyman, 374. Fl. Oxf. 163. Native. Agrestal. Cultivated fields, &c. Generally distributed and locally common. A. May–August.

First record. *M. chamomilla*, *Camomile Feverfew*, Dr. Noehden, *Mavor's Agr. Berks*, 1809.

A discoid form was noticed on chalk ballast near Reading. The plant is too common in all the districts to need localities.

It occurs in all the bordering counties.

TANACETUM, Linn. Gen. n. 848 (Tournefort, Inst. t. 261).

T. vulgare, Linn. Sp. Pl. 844 (1753), and of *Tragus*. *Tansy*.

Top. Bot. 260. Syme, E. B. v. 44, t. 716. Nyman, 375. Fl. Oxf. 163. Native. Viatical. Roadsides, hedges, and river-banks, heathy fields.

Local. P. June–September.

First record. *T. vulgare*, Common tansy, Dr. Noehden. Meat rubbed with the leaves will not be attacked by the flesh fly, *Mavor's Agr. Berks*, 1809.

1. *Isis*. Appleton, Barratt, in *Baxt. Phaen. Bot.* 24.
2. *Ock*. By the Mill brookside in South Moreton Common, a rare plant, *Lousley in Russell's Cat.* Turville Lane, *Hewett's Hist. Marcham, Walker.* Foxcombe Hill, *Boswell.* Near Kennington, *Baxter, in Fl. Oxf.* Didcot. Fyfield, *Miss F. M. Parker.* Near Radley.
3. *Pang*. Streatley, *Pamplin.* In one spot only near a farm, Hampstead Norris, *W. M. Rogers.* Near Maple Durham, but on the Berkshire side of the river near the Roebuck, *Tufnail, in Fl. Oxf.* Tilehurst. Bucklebury. Hawkridge. Pangbourn.
4. *Kennet*. Mortimer, *Tufnail.* Wickham, *Mrs. Batson.* Railway-banks near Enborne, *Weaver.* Bucklebury. Wash Common.
5. *Loddon*. Banks of Blackwater, *Penny.* Twyford, *Stubbs, in Britt. Contr.* Arborfield, *Taylor.* Loddon Bridge. Whistley Mill. Hurst Green. Coleman's Moor. Finchampstead. Long Moor.

Tanacetum is recorded for all the bordering counties. In Bucks it occurs by the Thames, close to Eton Wick.

ARTEMISIA, Linn. Gen. n. 849 (Tournefort, Inst. t. 260).

A. Absinthium, Linn. Sp. Pl. 848 (1753). *Wormwood.*

A. vulgare, Fuchs, Hist. *Absinthium*, Brunfels.

Top. Bot. 251. Syme, E. B. v. 61, t. 731. Nyman, 376. Fl. Oxf. 164. Denizen or casual. Viatical. Waste places and roadsides. Very rare.

P. July–September.

First record. *A. absynthium*. Plentifully in several places, *Mavor's Agr. Berks*, 1809. Probably a mistake for *A. vulgaris*, which is omitted.

2. *Ock*. At Appleford, *Lousley in Russell's Cat.* 1839. A large plant occurred by the roadside near Dry Sandford, and another near Marcham. Near Cothill.
3. *Pang*. Streatley, *Pamplin.* (I have not seen it.)

4. **Kennet.** Denford, &c., *Reeks, in Britt. Contr.* 1871. Round the walls of Silchester, *Lousley*, l.c. (the locality is in Hampshire).

5. **Loddon.** 'Near Wellington College, plentiful, Fl. Well.,' *Britt. Contr.* (The Rev. C. W. Penny tells me he believes the plant was *A. vulgaris*; *A. Absinthium* does not occur there now.) On the borders of Messrs. Sutton's trial farm, *Tufnail*. On the high bank south of Maidenhead Station with other casuals.

A. Absinthium must be either a decreasing species in the midland counties or else the older botanists mistook for it forms of *A. vulgaris*.

A. Absinthium is recorded for all the bordering counties except Bucks, but it is only of casual occurrence in Oxfordshire.

A. vulgaris, Linn. Sp. Pl. 848 (1753), and of Caesalpinus. *Mugwort*.

Top. Bot. 252. Syme, E. B. v. 63, t. 732. Nyman, 378. Fl. Oxf. 164.

Native. Septal. Hedges, field-borders, &c. Common and generally distributed. A common feature in our hedge-sides throughout the county. P. July–September.

First record. Mugwort in the neighbourhood of Wantage, *Spencer's Complete British Traveller*, 1771. Sonning, *Mr. S. Rudge, Herb. Brit. Mus.* 1800. Probably it is the *A. absinthium* of *Mavor's Agr. Berks*, 1809, and the *A. Absinthium* of Fl. Well. in *Britt. Contr.* 1871.

In Berkshire the dried leaves are largely smoked by the country lads under the name of Docko.

Var. **COARCTATA** (J. H. Fors. in Linn. Inst. Skrift. 1807, not of Turcz., as a species). Boar's Hill, Cothill, Wantage, Bucklebury, Kintbury, &c.; it has much narrower leaflets than the type with which it is united by intermediate forms.

A. vulgaris is found in all the bordering counties.

****A. TOURNEFORTIANA**, Reichb. Ic. Exot. i. 6, t. 5.

An annual and casual from the East; it occurred at Didcot in 1895.

TUSSILAGO, Linn. Gen. n. 856 (Tournefort, Inst. t. 276).

T. Farfara, Linn. Sp. Pl. 865 (1753). *Colt's-foot*.

T. vulgaris, C. B. Pin. 197. *Farfara*, Caesalpinus.

Top. Bot. 254. Syme, E. B. v. 115, t. 780. Nyman, 397. Fl. Oxf. 170.

Native. Agrestal. Abundant on clayey soils throughout the county.

P. March–April.

One of our earliest spring flowers, the blooms appearing before the leaves.

First record. *T. farfara*, Dr. Noehden, *Mavor's Agr. Berks*, 1809. With *Uredo* and *Aecidium Tussilaginis* on it about Oxford, *Baxl. Phaen. Bot.* n. 91, 1835.

T. Farfara occurs in all the bordering counties.

PETASITES, Adans. Fam. ii. 122 (Tournefort, Inst. t. 258).****P. FRAGRANS**, Presl, Fl. Sic. i. 28 (1826).*Winter Heliotrope.*

Nardomia fragrans, Reichb. Fl. Germ. Exs. 289. *Tussilago fragrans*, Vill. in Act. Soc. Hist. Nat. Paris, i. (1792) 72. Syme, E. B. v. 117, t. 781. Nyman, 396. Comp. Cyb. Br. 533.

Alien. Grows in the woods at Park Place, and on the banks of a stream at Knowl Hill, opposite the Post Office, *Stanton*. In a hedge near Haines Hill, not far from Wokingham, and in a hedge between Southcote and Calcot Park.

P. officinalis, Moench, Meth. 568 (1794).*Butter Bur.*

P. vulgaris, Desf. F. Atl. 270 (1798), and Park. 419. *P. Petasites*, Karst. *Tussilago Petasites*, Linn. Sp. Pl. 866 (1753).

Top. Bot. 254. Syme, E. B. v. 119, t. 783. Nyman, 397. Fl. Oxf. 169. Native. Paludal. Sides of rivers, river-brooks, canals, and wet places.

Locally common, and with a wide distribution. A conspicuous feature of the Kennet vegetation. *P.* March-May.

First record. *Petasites vulgaris*, with *Uredo petasites*, Grev., on it about Oxford, Mr. Baxter's MSS. 1830.

1. Isis. Wytham. Appleton. Buscot.

2. Ock. Bugg's Mill, near Abingdon. Between South Moreton and Wallingford, and in orchards at Blewbury, *Lousley in Russell's Cat.* 1839. Shellingford, *Richards*. Cothill. Marcham, *Walker*. Kennington. Radley. Wittenham. Sutton Courtney, &c.

3. Pang. Between Frilsham and Bucklebury, *Lousley*, l. c. Streatley Weir, *Tufnail*, in *Fl. Oxf.* Pangbourn. Tidmarsh.

4. Kennet. Southcote. Abundant along the Kennet, as at Theale. Midgham. Thatcham. Aldermaston. Kintbury. Chilton Foliat. Hungerford, &c.

5. Loddon. Shiplake Weir and Harleyford, *Stanton*. Sonning, *Tufnail*. Wargrave. Bisham. Bray. Wokingham. Windsor, &c.

The female plant *Petasites major*, *floribus pediculis longis insidentibus*, Ray—*Tussilago hybrida*, Linn. Sp. Pl. 866, is said to have been found near Banbury in Oxfordshire, and I have seen it in Northamptonshire, but I have not noticed it in Berkshire. A poor figure of an immature specimen is given in Syme, E. B. t. 784.

P. officinalis is found in all the bordering counties.

****CALENDULA OFFICINALIS**, Linn. Sp. Pl. 921 (1753).*Garden Marigold.*

This plant occurs as a garden escape, but is not permanent; it has been found near Grandpont, near Southcote, Didcot, Aston, Windsor, &c.

DORONICUM, Linn. Gen. n. 862 (Tournefort, Inst. t. 277).***D. PARDALIANCHES**, Linn. Sp. Pl. 885 (1753).*Leopard's Bane.*

Comp. Cyb. Br. 534. Syme, E. B. v. 91, t. 761. Nyman, 349. Baxt. t. 157.

Alien or denizen. Sylvestral. Plantations. Very local. *P.* July-August.

First shown to me in Berkshire by Mr. Carles in 1892, and now recorded in this Flora.

1. *Isis*. It is plentiful in the plantation near Buscot ornamental water, whence specimens were sent by me to the *Bot. Exch. Club* in 1892.
2. *Ock*. Near Besilsleigh, in a wooded part of the Park, and evidently the remains of a garden; pointed out to me by Mr. Carles.

D. Pardalianches is recorded for Surrey and Wiltshire.

**D. PLANTAGINEUM*, Linn. Sp. Pl. 885 (1753). *Leopard's Bane*.

Comp. Cyb. Br. 534. Syme, E. B. v. 92, t. 762. Fl. Oxf. 157. Nyman, 350.

Alien. Relic of cultivation. Very rare. P. June-July.

Only record a specimen collected near Besilsleigh by *Sir Joseph Banks* about 1770 in *Herb. Brit. Mus.*

D. plantagineum is recorded for Hampshire at Sidmonton, near to the Berkshire border.

SENECIO, Linn. Gen. n. 857 (Tournefort, Inst. t. 260).

S. vulgaris, Linn. Sp. Pl. 867 (1753) and of *Tragus*. *Common Groundsel*.

Top. Bot. 255. Syme, E. B. v. 80, t. 749. Nyman, 358. Fl. Oxf. 160.

Native. Agrestal. Cultivated ground, waste places. Ubiquitous, except on the heaths of the south-west and on the grassy tracts of the chalk downs, and one of the earliest species to appear on newly broken ground. One of our commonest species. A. In flower the whole year.

First record. Sonning, *Mr. S. Rudge in Herb. Brit. Mus.* 1800. Published as *S. vulgaris* in *Mavor's Agr. Berks*, 1809.

In rich soil the plant is nearly glabrous, but in dry arid soil and in open situations the plant becomes covered with an arachnoid pubescence.

Var. *RADIATUS*, Koch, Syn. Fl. Germ. 386 (1837), is very rare; I have seen it at Grandpont, near Oxford.

S. vulgaris occurs abundantly in all the bordering counties.

S. sylvaticus, Linn. Sp. Pl. 868 (1753). *Wood Groundsel*.

S. viscosus, Sibth. not of Linn. *S. montanum*, Tabernaemont. Ic. 169. *Erigerum*, Gerard, 217.

Top. Bot. 255. Syme, E. B. v. 81, t. 750. Nyman, 358. Fl. Oxf. 160.

Native. Ericetal. Heaths and commons on dry sandy soil. Locally common, but absent from considerable areas. A. April-Sept.

First record. Bagley, *Mr. Baxter's MSS.* 1829. Published in *Russell's Cat.* 1839.

1. *Isis*. Wytham. Pusey. Buckland.
2. *Ock*. Bagley, *Baxter*. Frilford. Tubney. Wootton. Boar's Hill, *Fl. Oxf.* Chawley. Besilsleigh. Wittenham.
3. *Pang*. Cold Ash Common. Bucklebury. Hermitage. Oare.
4. *Kennet*. Mortimer, *Tufnail*. Road beyond Washwater, *Russell*. Aldermaston. Burghfield. Upton. Padworth. Newbury Wash Common. Greenham. Crookham. Wickham. Snelsmore, &c.

5. Loddon. Wellington College, Penny. Frequent on gravelly soil near Park Place, Stanton. Ambarrow. Finchampstead. Ascot. Sunningdale. Early. Sonning. Risely. Farley Hill. Bagshot. Sandhurst. Binfield. Bracknell. Windsor Park, &c.
 Var. *AURICULATUS*, Meyer, Chlor. Hanov. 388 = *S. lividus*, Sm. E. B. t. 2515 (not of Linn.), Syme, E. B. t. 751, occurs usually in more shady places than the type; I have it from Chawley, Bagley, &c.
S. sylvaticus occurs in all the bordering counties.

[*S. viscosus*, Linn. Sp. Pl. 868 (1753). *Clammy Groundsel*.

Top. Bot. 255. Syme, E. B. v. 82, t. 752. Fl. Oxf. 160. Nyman, 358.

Recorded for Surrey and Hants. In Sibthorp's *Flora Oxoniensis* a form of the preceding species was mistaken for it.]

**S. squalidus*, Linn. Sp. Pl. 869 (1753). *Oxford Ragwort*.

S. chrysanthemifolius, Poir. Enc. vii. 96 (1806).

Comp. Cyb. Br. 534. Syme, E. B. v. 83, t. 753. Nyman, 357. Baxt. t. 52. Fl. Oxf. 158.

Denizen. Railway-banks and ballast and waste ground, and occasionally on walls. In Oxford it is common on walls. Locally common and increasing rapidly along the permanent way of the Great Western Railway System. A. B. or P. April–October.

First record. Wytham, 1833, Baxt. Phaen. Bot. 1834.

1. Isis. On a wall at Wytham in 1833, Baxt.

2. Ock. Ditch near Kennington, Wicks. Waste ground at Folly Bridge and Grandpont. On a wall in Ock Street, Abingdon. Plentiful on railway-ballast at Didcot, and sparingly at Challow. Near Cholsey.

3. Pang. Railway-bank, Tilehurst, 'a casual only,' Lees, 1883. Plentiful by the railway near Reading, also near Pangbourn.

4. Kennet. Near the Kennet's mouth.

The plant offers a considerable amount of variation.

Var. *INCISUS*, Guss, Fl. Sic. ii. 475 (1843), is the usual form of the plant as it grows on walls and dry ground about Oxford, Reading, &c.; it can scarcely be separated from *S. chrysanthemifolius*, Guss, l. c.

Var. *LATILOBUS*, DC., Prod. vi. 345 (1837), has the leaves cut into broader lobes and is found occasionally on rich waste ground. A more extreme form with nearly entire leaves (*f. subintegra*) was distributed by the author through the Bot. Exch. Club in 1885 and 1886. It is found on rich waste ground, as at Reading, but the more cut-leaved forms are also found with it.

S. SQUALIDUS × *VULGARIS* = ? *S. vernalis*, Boswell [Syme], not of Waldst et Kit. × *S. Baxterii*, Druce, in Rep. Bot. Exch. Club 374 (1892). Plants which have much of the aspect of *S. vernalis* are sometimes found on waste ground with both parents. I have seen such at Grandpont,

near Folly Bridge, and at Didcot. They are much more glabrous than any specimen of true *vernalis* which I have seen.

In Sicily the *Oxford Ragwort* is known as the *Erva de S. Petru*. That it was introduced at Oxford from the Botanic Gardens is pretty conclusively proved by the fact that cultivated specimens are in Bobart's herbarium there. It has now been carried by passing trains over a wide portion of the Great Western System, and is extending rapidly, but I have only records of Bucks and Wilts for the other bordering counties.

The plate in *English Botany* was drawn from a specimen from Oxford sent by Mr. A. B. Lambert in 1799.

****S. CRASSIFOLIUS**, Willd. Sp. Pl. iii. 1982 (1800). Nyman, 357. Fl. Oxf. 159 and 450.

Alien or denizen. Waste ground. Very rare. A. May-June.

First found by the author in Berkshire in 1884, and first in Britain.

2. Ock. Near Folly Bridge in 1884, on ground now built over. At Grandpont in 1892.

Specimens were shown to Mr. J. G. Baker and to Mr. Groves of Florence, who agreed that the above determination was correct. Boissier, in the *Flora Orientalis*, places this species under *S. leucanthemifolius*, Poir. not of Phil. So far as the Oxford and Berkshire plants are concerned, I could easily believe that they were the offspring of *S. vulgaris* and *S. equalidus*.

S. erucifolius, Linn. Fl. Suec. ed. 2, 291 (1755). *Hoary Ragwort*.

S. tenuifolius, Jacq. Fl. Austr. iii. 42, t. 378, and Sm. E. B. t. 574.

Top. Bot. 255. Syme, E. B. v. 84, t. 754. Nyman, 356. Fl. Oxf. 158.

Native. Viatical. Waysides, field-borders, hedges, &c. Locally abundant and characteristic of clay soils, but absent from light sandy heathy country. P. July-September.

First record. Between Botley and Cumnor, Mr. Baxter's MSS. 1820.

Donnington Road, Russell's Cat. 1839.

1. *Isis*. Between Botley and Cumnor, Baxter. Wytham. Appleton. Lechlade. Shrivenham. Bourton.

2. Ock. Near the Hinkseys, Baxter. Marcham, Walker. Kingston Lisle, Bellamy. Chawley. Besilsleigh. Wootton. Radley. Uffington. Near Wantage. Blewbury. Wittenham. Didcot. Hanney. Aston Tirrel, &c.

3. Pang. Cold Ash Common, Hermitage, W. M. Rogers. Ashridge Wood. Near Tilehurst. Oare. Yattendon.

4. Kennet. Donnington Road, Russell, l. c. Mortimer, Tufnail. Inkpen. Theale. Crookham Heath, &c.

5. Loddon. In the Bisham Wood quarry, Mill. Park Place, Stanton. Roadside near Virginia Water, Dewar [perhaps in Surrey], Herb. Brit. Mus. Shinfield, Tufnail. Sonning. Holyport. Twyford. Ashley Hill. Whistley Green. Waltham. Winkfield. Windsor, and on the borders of the Forest. Hurley. Early, &c.

A form occurred on Boar's Hill and at Chawley, near the brickyards, which is possibly a hybrid of this species with *S. Jacobaea*. A nearly glabrous form (*f. glabra*) also occurred there and near Bagley Wood, in which the leaf-segments are much broader than usual.

S. erucifolius occurs in all the bordering counties.

S. Jacobaea, Linn. Sp. Pl. 870 (1753). *Common Ragwort, Ragwort Groundsel.*

Jacobaea vulgaris, J. Bauhin, Hist. ii. 105.

Top. Bot. 256. Syme, E. B. v. 85, t. 755. Nyman, 355. Fl. Oxf. 158. Native. Pascual. Pastures, roadsides, heaths, &c. Locally abundant and generally distributed. P. June-September.

First record. Sonning, Mr. S. Rudge in *Herb. Brit. Mus.* 1800. *S. jacobaea*. *Mavor's Agr. Berks*, 1809.

Dr. Mavor says that 'the plant dyes yellow and that animals are not fond of it.' Rabbits, however, eat it, but not until other vegetation is getting scanty. The caterpillar of the Cinnabar Moth is a conspicuous object on the Ragwort, which is very abundant in the clearing of Wytham Wood, on the dry sandy tract about Besilsleigh and Cothill, on many of the commons on the Tertiaries of the Pang and Kenpet districts, and also on the heathy ground of Sandhurst, Ambarrow, and Bracknell. In Windsor Great Park there are also extensive areas occupied by it.

Var. *FLOSCULOSUS* (Jord. Cat. Jard. Dijon, 30 (1848), as a species); a discoid form has been seen near Ascot.

S. Jacobaea occurs plentifully in all the bordering counties.

S. aquaticus, Huds. Fl. Angl. 317 (1762). *Water Ragwort.*

Jacobaea latifolia, palustris sive aquatica, Ray, Syn. i. 50 (1690).

Top. Bot. 256. Syme, E. B. v. 86, t. 756. Nyman, 355. Fl. Oxf. 158. Native. Inundatal. Marshes, meadows, damp roadsides, &c. Rather common and widely distributed in the low-lying districts, but not occurring in such masses as the former species. P. July-Sept.

First record. *S. aquaticus*, without locality, *Russell's Cat.* 1839. Wet places, Marlow, Mr. G. G. Mill in *Phyt.* i. 987, 1843, and as *S. aquatilis* by Mr. T. B. Flower, in *Robertson's Env. of Reading*, 1843.

The outline of the leaves in this species varies considerably.

Var. *PENNATIFIDUS*, Gren. et Godr. Fl. France, ii. 115, which has the radical and lower leaves with conspicuous lateral lobes and the upper stem-leaves deeply pinnatifid, is not uncommon; I have it from Wytham Meadows, Abingdon, Kennington, Radley, Theale, Sonning, &c.

Var. *DUBIA*, mihi, achenes of the disk florets slightly hairy, the hairs not confined to the shallow ridges.

This form is apparently rare, but may be readily overlooked for the ordinary plant, from which it does not appear to differ in other

characters. It grows in fields under Wytham Wood and in the Kennet meadows near Southcote.

A plant with very dark orange-coloured flowers (*f. aurantiaca*) occurred near Binsey in 1893.

S. aquaticus occurs in all the bordering counties.

[**S. SARRACENICUS**, Linn. Sp. Pl. 871 (1753).

So spelt in Index Kewensis. *S. saracenicus*, Linn. Sp. Pl. ed. 3, ii. 1221.

Syme, E. B. v. 87, t. 757. Nyman, 353. Fl. Oxf. 158.

Is recorded as an introduced plant for Oxfordshire and Wilts.]

S. campestris, DC., Prod. vi. 361 (1837). *Mountain Fleawort.*

Othonna integrifolia, Linn. Sp. Pl. 925 (1753). *Cineraria integrifolia*, With.

and Sm. E. B. t. 152. *C. campestris*, DC., Fl. Fr. iv. 164, Retz, Obs. t. 30.

Top Bot. 257. Syme, E. B. v. 89, t. 760. Nyman, 353. Fl. Oxf. 157.

Baxt. t. 206, from a Streatley specimen supplied by Mr. Borrer.

Native. Glareal. Grassy chalk downs. Scattered over the northern escarpment of the chalk downs, and also occurring on the northern side of the Hungerford Downs south of the Kennet. B. or l'. May.

First record. *Othonna integrifolia*, L., Streatley, Dr. Lightfoot MSS. about 1780, and as *Cineraria integrifolia*, Rev. Mr. Scholfield in *Mavor's Agr. Berks*, 1809.

1. Isis. Downs near Ashbury, rare.

2. Ock. White Horse Hill, Trimen, 1866, in *Herb. Brit. Mus.* Near Uffington Castle.

3. Pang. Upon the hills by the Thames side at Streatley about 8 miles from Reading on the road to Wallingford, *Lightfoot MS.* Hill above Streatley, *Scholfield, l.c.* On the downs near Streatley; kindly pointed out to me by Rev. Mr. Goodenough [Bishop of Carlisle], May 13, 1819, *Baxter in Pert. Midl. Fl.*; also recorded from this locality by Mr. Sheffield, Mr. Yalden, Dr. Williams, Mr. Pamplin, &c. Compton and Ilsley Downs, *Baxter*. Moultsford Downs, *Rudge*, 1800. East Ilsley Down, *Hewett's Hist.*

4. Kennet. Hungerford Downs, *Tufnail*. W. Ilsley. Downs near Uffington Castle.

Grown in garden soil the plant becomes much increased in size.

It is recorded for all the neighbouring counties.

CARLINA, Linn. Gen. n. 836 (Tournefort, Inst. t. 285).

C. vulgaris, Linn. Sp. Pl. 828 (1753). *Carlina Thistle.*

Top. Bot. 246. Syme, E. B. v. 21, t. 698. Nyman, 401. Fl. Oxf. 170.

Native. Glareal. Dry pastures, open heaths and downs. Locally common, especially on the chalk downs. B. June–September.

First record. *C. vulgaris*, Dr. Noehden, *Mavor's Agr. Berks*, 1809.

1. Isis. Idstone and Ashbury.

2. **Ock.** Tubney, *Walker*. Frilford Heath. Cherbury Camp. Uffington. Letcombe. Wantage Downs. Wittenham. Blewburton Camp.
3. **Pang.** Streatley, *Pamplin*. Compton Downs. East Ilsley Downs. Unwell Downs. Basildon. Sulham. Lowbury. King Standing Hill.
4. **Kennet.** North Heath, *Russell's Cat.* Mortimer, *Tufnail*. Walbury Camp. Gibbet Hill. Lambourn Downs. Near Farnborough. West Ilsley. Hodcott.
5. **Loddon.** Wellington College, everywhere, *Penny*. Park Place, *Stanton*. Specimens three feet high near the entrance to Easthampstead Park, *Bullock-Webster*. Stubbing's Heath. Maidenhead. Sandhurst.

Much more prevalent than the above records show. It is found in all the bordering counties.

ARCTIUM, Linn. Gen. n. 830 (*Lappa*, Tournefort, Inst. t. 256).

A. Lappa, Linn. Sp. Pl. 816 (1753). *Great Burdock*.

A. majus, Bernh. Syst. Verz. Erf. 154 (1800). *Lappa major*, Gaertn. Fruct. ii. 379.

Top. Bot. 238. Syme, E. B. v. 23, t. 699. Nyman, 402. Fl. Oxf. 171. Native. Sylvestral, &c. Copses, hedges, waste ground, &c. In scattered localities through the county. B. June-September.

First record. A specimen, Sonning, Mr. S. Rudge, in *Herb. Brit. Mus.* 1800. *A. Lappa*, with *Erysiphe Arctii*, Grev., about Oxford, *Bast.* *Phaen. Bot.* 333, 1840.

1. **Isis.** Wytham. Cumnor. Appleton. Near Lechlade. Pusey.
2. **Ock.** Denchworth, *Wait*. Bagley. Boar's Hill. Wittenham. Tubney. Near Cherbury Camp. Coxwell. Cothill.
3. **Pang.** Near Tilehurst, *Lees*, in *Rep. of Bot. Rec. Club*, 1883. Pangbourn, *Tufnail*. Near Streatley. Tidmarsh. Ashampstead. Yattendon. Hampstead Norris, &c.
4. **Kennet.** Winterbourne, *W. M. Rogers*. Mortimer, *Tufnail*. Kintbury. Hungerford. Theale. Sandleford. Snelsmore. Aldermaston, &c.
5. **Loddon.** Shinfield, *Tufnail*. Sonning, *Rudge*, fine specimens there in 1896. Wellington. Long Moor. Sandhurst. Park Place. Windsor Park. Swinley.

A. Lappa is recorded for all the bordering counties.

A. intermedium, Lange, Dansk. Fl. 463 (1864), et Fl. Dan. t. 2663.

Bab. Man. Brit. Bot. ed. 5, 187. Top. Bot. 239. Syme, E. B. v. 25, t. 700. Nyman, 402. Fl. Oxf. 171.

Native. Septal and viatical. Woods, hedges, roadsides, &c. Local.

B. July–August.

First found in Berkshire by the author in 1886.

1. *Isis*. Pusey.

2. *Ock*. Marcham. Tubney. Besilsleigh. Near Cherbury Camp. Boar's Hill. Bagley.

4. *Kennet*. Padworth. Theale. Aldermaston.

5. *Loddon*. Sandhurst. Near the Thames at Bray. Finchampstead.

A. intermedium is recorded for Oxfordshire, Hants, Surrey, and Wilts, and I have seen it near Bray in Buckinghamshire.

A. nemorosum, Lej. in Reichb. Ic. Fl. Germ. et Helv. xv. 54 (1853).

Top. Bot. 240. Syme, E. B. v. 25, t. 701. Nyman, 402. Fl. Oxf. 171.

Native. Septal and viatical. Roadsides, hedges, thickets, &c. Local.

B. July–August.

First found in Berkshire by the author in 1886.

1. *Isis*. Near Appleton. Pusey.

2. *Ock*. Tubney. Boar's Hill. Hen Wood. Cherbury Camp. Bagley Wood. Frilford. Wittenham. Dry Sandford. Cothill. Didcot.

4. *Kennet*. Padworth. Midgham. Newbury Wash. Inkpen.

5. *Loddon*. Finchampstead. Winkfield.

The localities for this species are avowedly very incomplete. The synonymy of the four species of Burdocks has been very much confused, and I do not think that the figure labelled *Lappa intermedia*, in Reichb. Ic. Fl. Germ. et Helv. 81, well represents our plant.

A. nemorosum is not reported for E. Gloucestershire or Bucks.

A. minus, Bernh. Syst. Verz. Erf. 154 (1800). *Burdock*.

Top. Bot. 238. Syme, E. B. v. 24, t. 702. Nyman, 402. Fl. Oxf. 171.

Native. Sylvestral and viatical. Waysides, woods, hedges, &c. Common and generally distributed. B. July–September.

First probable record. *A. lappa*, roadsides and rubbish, *Mavor's Agr.*

Berks, 1809. *Erysiphe Arctii*, Grev., is not uncommon on *A. Bardana*

about Oxford, *Bart. Phaen. Bot.* n. 333.

Common in all the districts and in all the bordering counties.

[**A. tomentosum**, Miller, Gard. Dict. ed. 8 (1768). *A. Bardana*, Willd. Sp. Pl. iii. 1632 (1800).

Error. 'Oxford, ambiguity. Oxford Botanic Gardens, 1867, to which Mr. Baxter says he brought it from Bagley Wood many years before,' *Comp. Cyb. Br.* 530. See Journ. Bot. (1872) 332. Bagley Wood is in Berkshire, not in Oxfordshire, as assumed by Mr. H. C. Watson; but I have been unable to confirm the record.]

CARDUUS, Linn. Gen. n. 832 (Vaill. A. G. 1718).

C. pycnocephalus, Linn. Sp. Pl. ed. 2, 115 (1762), var. *tenuiflorus* (Curt. Fl. Lond. vi. t. 55, as a species).

C. acanthoides, Huds. Fl. Angl. ed. 2, ii. 351 (1778), not of Linnaeus. Top. Bot. 242. Syme, E. B. v. 6, t. 682. Nyman, 414. Fl. Oxf. 175. Native. Viatical. Waysides. Very rare. A. or B. July–August. First certain record. *C. tenuiflorus*, Dry Sandford, the author, in the *Flora of Oxfordshire*, 1886.

2. **Ock.** By the roadside close to the hedges on sandy soil in two or three stations near Dry Sandford and Cothill, but I have not seen it for the last two years. Mr. F. Walker told me he had seen it near Marcham.

[3. **Pang.** About Streatley, *Pamplin*, in *Phyt.* v. (1854) 156. Probably an error; no one else has recorded it from the district.]

[4. **Kennet.** Without locality, in *Russell's Cat.* 1839. Probably a misnomer.]

Either this species is rapidly decreasing in the midland counties or the older botanists confused other species with the true plant. See the same remark under *A. Absinthium*.

C. pycnocephalus, var. *tenuiflorus*, is recorded for Hants and Gloucestershire, but is, I am afraid, extinct in Oxfordshire.

C. nutans, Linn. Sp. Pl. 821 (1753), and of J. Bauhin. *Musk Thistle*.

Top. Bot. 241. Syme, E. B. v. 7, t. 683. Nyman, 411. Fl. Oxf. 174.

Native. Glareal. Waysides, common on chalk downs, calcareous pastures, &c., evincing a partiality for calcareous soils but not absolutely confined to them. B. May–September.

First record. Sonning, Mr. S. Rudge in *Herb. Brit. Mus.* 1800. Published as *C. nutans* by Dr. Noehden in *Mavor's Agr. Berks*, 1809.

1. **Isis.** Cumnor. Wytham. Common along the road to Faringdon from Oxford wherever the Coralline Oolite is near the surface. Idstone. Ashbury. Buckland. Badbury Hill, &c.

2. **Ock.** S. Hinksey, *Lawson* in *Herb. Oxf.* Kingston Lisle, *Bellamy*. Wantage, *Whitcell*. Pusey. Blewburton Camp. Wittenham Clumps. Uffington. Common in the Ridgeway fields. Abingdon Racecourse. Marcham. Cothill. Shippon. Didcot. Kingston Bagpuze, &c.

3. **Pang.** Ilsley Downs, *Pamplin*. Streatley, common, *W. M. Rogers*. King Standing Hill. Lowbury. East Ilsley. Compton. Ashampstead. Basildon. Sulham. Tilehurst. Oare. Yattendon. Bucklebury, &c.

4. **Kennet.** Theale. Sulhampstead, *Tufnail*. On the walls of Reading Abbey. Fields near Wayland Smith's Cave. Lambourn Downs. Catmore. West Ilsley. Great Fawley. Donnington. Newbury. Mortimer. Hungerford. On the top of Walbury Camp, &c.

5. **Loddon.** Winter Hill and Cookham Down, *Mill*. Sonning.

Rudge. Lower Culham, Stanton. Stubbing's Heath. Wargrave. Hurley. Bisham. Maidenhead. Bray. Waltham, &c.

C. nutans × *CRISPUS* = *C. acanthoides*, Bab. Man. Brit. Bot. ed. 2, 183; this hybrid occurs at Frilford, Cumnor, Besilsleigh, Tubney, on the Boar's Hill range, at Letcombe, Hungerford, Twyford, &c. A specimen, gathered by the author at Cumnor in 1881, is in *Herb. Brit. Mus.* See *Rep. of Bot. Exch. Club* for 1881, in which Dr. Boswell Syme agreed to the name, and Professor Babington said it 'was what he had called *C. acanthoides*,' which is a hybrid of the two species mentioned.

C. nutans occurs in all the bordering counties.

C. crispus, Linn. Sp. Pl. 821 (1753). *Wetted Thistle, Thistle upon Thistle*. Top. Bot. 242. Syme, E. B. v. 7, t. 684. Nyman, 413. Fl. Oxf. 175. Native. Septal. Hedges, open woods, waysides, and waste places.

Common and generally distributed in partially shaded situations.

B. May–October. On the ruins of Reading Abbey it is plentiful. First record. *C. acanthoides* (without locality), *Russell's Cat.* 1839.

A form from Wantage, with large solitary anthodes, possibly caused by growing in rich soil, was collected by Dr. Trimen and is in *Herb. Brit. Mus.* White-flowered forms have been noticed at Kennington, Moulsoford, &c.

Var. *ACANTHOIDES* (Linn. Sp. Pl. 821, as a species, and also as a species in *Index Kewensis*), with larger leaves and fewer and much larger anthodes, has been seen at Egrove, Tidmarsh, Hinksey, Kingston Bagpuze, Cumnor, &c.

Var. *POLYANTHEMOS* (Koch, Syn. Fl. Germ. 401, as a species), with smaller and more numerous anthodes, is the more frequent plant, especially in drier situations.

C. crispus occurs in all the bordering counties.

CNICUS, Linn. Gen. n. 833 (Tourn. Inst. t. 257).

Cirsium, Adans. Fam. ii. 116 (1763) (Tournefort, Inst. t. 255).

C. lanceolatus, Willd. Prod. Fl. Berol. 259 (1787). *Spear Thistle*.

Carduus lanceolatus, Linn. Sp. Pl. 821 (1753). *Cirsium lanceolatum*, Hill, Herb. Brit. i. 80. *C. lanceatus*, Gerard, 1011.

Top. Bot. 242. Syme, E. B. v. 10, t. 686. Nyman, 406. Fl. Oxf. 173. Native. Viatical. Hedges, pastures, roadsides, waste places, newly cleared or open woods, &c. Very common and generally distributed. B. May–November.

First record. Sonning, *Mr. S. Rudge in Herb. Brit. Mus.* 1800. Published as *Carduus lanceolatus*, Mr. Bicheno in *Mavor's Agr. Berks*, 1809.

This and *C. arvensis* are our two commonest thistles, next to these come *C. palustris* and *Carduus crispus*.

A hybrid with *Carduus crispus* occurred in 1881 near Great Oakley House, see *Journ. Bot.* (1883) 26, and *Fl. Oxf. l.c.*

White-flowered forms have been noticed in several places, as at Ashampstead, East Hanney, Long Wittenham, Theale, Catmore, &c.

C. lanceolatus occurs in all the bordering counties.

C. eriophorus, Roth, Tent. Fl. Germ. i. 345 (1788). *Woolly-headed Thistle*.

Carduus eriophorus, Linn. Sp. Pl. 823, and of Ger. Em. 1152. *Cirsium eriophorum*, Scop. Fl. Carn. ed. 2, ii. 130 (1772).

Top. Bot. 243. Syme, E. B. v. 11, t. 687. Nyman, 405. Fl. Oxf. 172.

Native. Glareal. Roadsides, dry pastures, &c. Local. Practically restricted to the Coralline Oolite and Chalk. B. July–September.

First record. *Carduus Erioccephalus corona fratrum*. I found it in ye highway neare Abington leading towards Oxford, July 2, 1622. J. Goodyer, MS. *Carduus eriophorus*, Berkshire, Sm. Fl. Brit. ii. 852, 1800.

1. **Isis.** Cumnor. Besilsleigh, Boswell. Buckland, Fl. Oxf. Wytham Wood.

2. **Ock.** Near Abingdon, Goodyer. About Wantage, *Bicheno in Mavor's Agr. Berks.* Little Wittenham, Mrs. Cozens. Woolston. Uffington, Bellamy. Near Tubney, Walker. Cothill. Wootton. Abundant in Jenny Bunting's Parlour on Boar's Hill. Near Ferry Hinksey. Shippon. Near Pusey. Frilford, &c. Rather common on the Coralline Oolite in this district.

3. **Pang.** Ashridge Lane, *Hewett's Hist.* Streatley, Pamplin. Mouldsford.

4. **Kennet.** Near Newbury, *Russell's Cat.* Red Farm, Shaw, Jackson. Near Kennet's mouth, on ballast, *Tufnail*. Near Farnborough. Letcombe. Beenham.

C. eriophorus is recorded from all the bordering counties except Surrey.

C. palustris, Willd. Prod. Fl. Berol. 260 (1787). *Marsh Thistle*.

Carduus palustris, Linn. Sp. Pl. 822 (1753), and of C. B. Pin. 377. *Cirsium palustre*, Scop. l.c.

Top. Bot. 243. Syme, E. B. v. 12, t. 688. Nyman, 409. Fl. Oxf. 174.

Native. Pratal and uliginal. Meadows, marshes, damp woods, hedge-banks, &c. Common and generally distributed. B. May–September.

First record. *Carduus palustris*, Dr. Noehden, *Mavor's Agr. Berks.*, 1809.

This is, after *C. arvensis* and *C. lanceolatus*, our commonest thistle. White-flowered forms (*f. alba*) are by no means uncommon, as at Cumnor (*Morrison*), Newbury, Bagley, Radley, Sandhurst, Windsor Forest, Stubbing's Heath, &c. The anthodes are quite viscid. The form with densely aggregated anthodes is the common one, but forms with stalked anthodes are not uncommon; some of these are possibly owing to a cross with *C. arvensis*.

C. PALUSTRIS \times *ARVENSIS* I have seen at Ambarrow and Padworth. At Ambarrow, too, a form occurred with a naked peduncle. In the dry summer of 1893 a pretty form with elegantly cut leaves, and the anthodes collected in a compact terminal inflorescence, occurred in the Wytham meadows [and in the Marston fields in Oxfordshire].

Grenier & Godron in *Flore de France* describe a var. *torphaceum* (under *Cirsium*) which has naked branches, but I have not observed it in Berkshire.

C. palustris occurs plentifully in all the bordering counties.

[*C. TUBEROSUS*, Roth, Tent. Fl. Germ. i. 345 (1788). *Cirsium tuberosum*, All. Fl. Ped. i. 151 (1785). Syme, E. B. v. 13, t. 689.

One of the rarest British plants which occurs, so far as is known, only on the Avebury Downs in Wiltshire, whence the author distributed specimens through the *Bot. Exch. Club* in 1894.]

C. pratensis, Willd. Sp. Pl. iii. 1672 (1800). *Meadow Thistle*.

Cirsium anglicum, DC., Fl. Fr. iv. 118 (1805), and of Lobel. Ic. 583.

Carduus pratensis, Huds. Fl. Angl. ed. 2, 353. *C. dissectus*, Huds.

Fl. Angl. 307, not of Linn. *C. anglicus*, Lam. Enc. Méth. i. 705

(1783). *Cirsium pratense*, mihi, not of DC. *Carduus tuberosus*, Linn.

Sp. Pl. 824 (1753), teste Indice Kewensi.

Top. Bot. 243. Syme, E. B. v. 14, t. 690. Nyman, 407. Fl. Oxf. 173.

Native. Uliginal. Marshes, bogs, moist meadows. Local and rather rare in the north of the county. Common on the boggy ground of the south-west. A. B. or P. May-September.

First record. *Cirsium Anglicum*, Lob. On Early Heath, a mile from Redding, *Johnson's Mercurius*, 29, 1634. Also Bunnish Heath, a mile from Reading, [How's] *Phyt. Brit.* 1650. This latter record is probably supplied by J. Watlington of Reading, whose initials are appended to it in Elias Ashmole's copy of that work in the Bodleian Library. To this species may belong '*C. Anglicum minus*, Park. The lesser single-headed Thistle in Duckleton Lottes in Berkshire, Mr. Stonehouse' [How's] *Phyt. Brit.* 1650. [Ducklington is in Oxfordshire.]

1. *Isis*. Wytham.

2. *Ock*. Near Oakley House, *F. 'Smith,' Brit. Journ. Bot.* (1873) 139. [Probably Mr. Britten meant *F. Walker*.] Bagley Wood, boggy place sloping north. In meadow near Botley Pound, 1831, *Baxter, in Fl. Oxf.* Frilford. Tubney. Meadow below Kennington, *Fl. Oxf.* Hagborne Marsh, *Miss Fry*. Cothill. Bog between Ferry Hinksey and Hen Wood. Marcham.

3. *Pang*. *C. heterophyllum*, Cold Ash Common, *Russell's Cat.* 1839. Oare Common.

4. *Kennet*. Woodhay, as *C. heterophyllum*, *Russell's Cat.* 1839, see *Phyt.* iii. (1850) 716. Greenham Common. Crookham Heath. Snels-

more Common. Aldermaston. Burghfield. Mortimer. Bucklebury. Newbury Wash. Upton. Enborne, &c.

5. Loddon. Early Heath, *Johnson*. Bulmarsh. Bagshot Common, *J. Smith, Herb. Brit. Mus.* Boggy ground in Windsor Park. *Gotobed*, 1805. Ascot, *Wilkin*. Near Caesar's Camp. Wellington College. Ambarrow. Long Moor. Sandhurst. Crowthorn. Wokingham. Sunninghill Bog. Whitemoor Bog, near Bracknell. Risely. Below Finchampstead. Near Blackwater.

The annual plant has sub-entire leaves and a single flower-head, but the biennial or perennial has often cut leaves and two or three heads or flowers, and is the sub-var. *polycephalus*. The difference of the two forms has led to the reporting of one of them as *C. heterophyllus*, which is a plant of Northern Britain not found in the Midlands.

A hybrid with *C. palustris* was noticed at Long Moor—*C. PRATENSIS* × *PALUSTRIS* (? *Cnicus Forsteri*, Sm.).

C. pratensis occurs in all the bordering counties.

C. acaulis, Willd. Prod. Fl. Berol. 260 (1787). *Dwarf Thistle, Stemless Thistle.*

Carduus acaulis, Linn. Sp. Pl. 1199. *C. acaulis septentrionalium*, Park. 969. *Cirsium acaule*, All. Fl. Ped. i. 153 (1785). [Web. ex] Wigg. Prim. Fl. Holsat. 59. *C. acaulos*, Scop. l. c. 131.

Top. Bot. 244. Syme, E. B. v. 16, t. 692. Nyman, 407. Fl. Oxf. 173. Native. Pascual. Chalk downs, commons, dry heaths, open hilly pastures and roadsides on calcareous soil. Locally abundant, especially on the grassy chalk downs or dry calcareous pastures. It is absent from large areas on the Clays and Bagshot Sands. P. June–October.

First record. Park Place, *Mr. S. Rudge, Herb. Brit. Mus.* 1800. *Carduus acaulis*, Dwarf thistle, Dr. Noehden and Mr. Bicheno on Ilsley and other downs, *Mavor's Agr. Berks*, 1809.

Var. *CAULESCENS* (Pers. Syn. ii. 389, as a var. of *Carduus*), Syme, E. B. t. 692, bis, is not unfrequent. I have seen it at Frilford, Besilsleigh, Letcombe, Lambourn, and in an extreme state by the railway near Streatley, on Stubbing's Heath and Pinkney's Green, &c. None of these caulescent forms suggested hybridity.

C. acaulis occurs in all the bordering counties.

C. arvensis, Bernh. Syst. Verz. Erf. 156 (1800). *Common Thistle, Way Thistle.*

Serratula arvensis, Linn. Sp. Pl. 820 (1753). *Carduus arvensis*, Robs. Brit. Fl. 163, Curt. Fl. Lond. vi. t. 57. *Carduus vulgarissimus viarum*, Ger. Em. 1173. *Cirsium arvense*, Scop. l. c. 126 (1772).

Top. Bot. 243. Syme, E. B. v. 17, t. 693. Nyman, 410. Fl. Oxf. 174.

Native. Agrestal. Cornfields, roadsides, waste places. Abundant and ubiquitous. One of our commonest species. P. June–Sept. First record. Sonning, Mr. S. Rudge, in *Herb. Brit. Mus.* 1800. *Serratula arvensis*, Mavor's *Agr. Berks.* 1809.

C. arvense occurs under several modifications. White-flowered forms are not unfrequent, as at Hinksey, Eaton, Hastings, Compton Beauchamp, Sparsholt, Inkpen, Sulhampstead, Barkham, Hawthorn Hill, and Clewer.

Var. *Mitis* = *Cirsium arvense*, var. *mite*, Koch, Syn. Fl. Germ. 400 (1837), as the name denotes, is a much less prickly form than the type; it is found in more shady situations and in richer soil, and appears to merge gradually into the typical form. I have seen it near Ascot, Wantage, Windsor, Waltham, Tidmarsh, Theale, Kintbury, Basildon, Appleford, Marcham, Charney Bassett, Lyford, Longworth, Dean-court, Ferry Hinksey, &c.

Var. *Horridus* (Koch, l. c. under *Cirsium*) is the very spinous form which is frequent in dry places; it is common on the Chalk downs, &c., as Blewburton, Lambourn, Catmore, Hungerford, Inkpen, Ilsley, Compton, Sonning, Bisham, Stubbing's Heath, Warfield, the drier parts of Windsor Park, &c. This form again appears to merge gradually into the intermediate form.

Var. *Setosus* (M. Bieb. Fl. Taur. Caucas. iii. 560, as a species of *Cirsium*), Syme, E. B. v. 18, t. 694. See Bess. Prim. Fl. Galic. ii. 172 = var. *integrifolius* (Koch, l. c. under *Cirsium*), is a third and more distinct form, which is probably a sub-species, and is rather a colonist than a native plant. It is of rare occurrence, and is usually found on rubbish heaps or waste ground. It was first noticed by the Rev. C. W. Penny in 1874 in the brickyards near Wellington College. Mr. F. T. Richards found it by the river near Oxford on the Berkshire side in 1888; I have seen it by the railway at Didcot and Reading, and on waste ground near Windsor, Grandpont, and on Abingdon Racecourse. It remains constant in cultivation.

C. arvensis occurs abundantly in all the bordering counties.

ONOPORDUM, Linn. Gen. n. 834 (Vaill. Act. Par. 1718, f. 37).

Onopordon Acanthium, Linn. Sp. Pl. 827 (1753). *Cotton Thistle*.

Acanthium vulgare, Park. 979. *A. album*, Ger. Em. 1149.

Top. Bot. 245. Syme, E. B. v. 2, t. 680. Nyman, 402. Fl. Oxf. 171. Native or denizen. Viatical. Roadsides and hedge-banks and waste places. Local and rather rare. B. July–September.

First record. West Hagbourn, Mr. J. Lousley, in *Russell's Cat.* 1839.

1. *Isis*. Between Besilsleigh and Appleton.

2. *Ock*. In the roadside near the turnpike gate, West Hagbourn, Lousley, l. c. Dry Sandford, Boswell. Tubney, Walker. Radley.

Frilford. Near Besilsleigh. Marcham. Cothill. Abingdon Racecourse. Cumnor Hurst. I think it is native in the district about Frilford.

3. Pang. East Ilsley, *Lousley*, l. c. Goring. Moultsford. Bradfield.
4. Kennet. Near Reading, *J. Carroll*, 1849, *Herb. Brit. Mus.* Inkpen, &c., *Reeks*, in *Britt. Contr.* By the Kennet's mouth on ballast, *Tufnail*.
5. Loddon. At the corner of the village of Hurley, *Mill*. Early. Sonning. Twyford. Maidenhead. Long Moor.

It is recorded for all the bordering counties, but not for East Gloucestershire.

MARIANA, Hill, Veg. Syst. iv. 19 (1762).

Silybum, Adans. Fam. ii. 116 (1763), ex Vaillant.

M. MARIANA, Hill, Hort. Kew. 61 (1768). *Milk Thistle*.

M. lactea, Hill, Herb. Brit. i. 75 (1769). *Silybum Marianum*, Gaertn. Fruct.

ii. 378. *Carduus Marianus*, Linn. Sp. Pl. 823 (1753). *C. Mariae*, Gerard, 989.

Comp. Cyb. Br. 531. Syme, E. B. v. 4, t. 681. Nyman, 404. Fl. Oxf. 172.

Casual. Viatical. Roadsides, waste ground. Rare. B. May-September. Sporadic.

First record. *Carduus Marianus*, Dr. Noehden in *Mavor's Agr. Berks*, 1809.

1. *Isis*. Longworth.
2. *Ock*. Plentiful by roadside about a mile from Abingdon, *Baxter*, 1827. Upton, *Miss Fry*. Still occurs there and on Abingdon Racecourse. Railway-side, Didcot.
3. *Pang*. Railway-side near Reading.
4. *Kennet*. Near Newbury.
5. *Loddon*. Wargrave, *Melville*. By the railway near Maidenhead.

In the latter place it occurs also in Bucks.

It is recorded for all the bordering counties.

SERRATULA, Linn. Gen. n. 831 (Dill. Giss. 8).

S. tinctoria, Linn. Sp. Pl. 816 (1753), and of Tabernaemont. *Saw-wort*.

Tinctorius flos secundus, Tragus. *Serratula purpurea*, Gerard, 576.

Top. Bot. 240. Syme, E. B. v. 28, t. 704. Nyman, 417. Fl. Oxf. 176.

Native. Sylvestral, glareal. Woods, thickets, heathy places, hedge-rows, and rarely on grassy downs. Local. P. June-September.

First record. Grove, *Mr. Baxter's MSS.* 1832, and *Baxt. Phaen. Bot.* 174, 1837.

1. *Isis*. In Cumnor Meadow in great abundance, *Baxter*.
2. *Ock*. Grove, *Baxter*. Wootton, *Boswell*, in *Fl. Oxf.* Uffington, by the canal-side, very fine specimens. Near Letcombe Castle. Boar's Hill. Cothill.
3. *Pang*. Compton Downs. Oare. Langley Wood.
4. *Kennet*. Mortimer, *Tufnail*. Burghfield. Aldermaston. Inkpen Common. Downs near Farnborough. Silchester.
5. *Loddon*. Wellington College, *Penny*. Easthampstead, *Crawley*. Early Heath, *Tufnail*. Sandhurst. Bracknell. Bagshot. Risely. Finchampstead Leas. Abundant by the railway between Ascot and Bracknell.

A small form with one or two sub-sessile anthodes occurred on the downs near West Ilsley in the dry summer of 1895, but most likely is only a state induced by extreme dryness and wind, and probably related to, if not identical with, *S. pygmaea*, Lois, Not. Pl. de France, 125, but is not the same as the Cornish plant figured on Syme, E. B. t. 704, bis.

S. tinctoria is recorded for all the bordering counties.

CENTAUREA, Linn. Gen. n. 88o.

C. nigra, Linn. Sp. Pl. 911 (1753). *Knapweed, Matfellow.*

C. Jacea, Huds. Fl. Angl. 326, not of Linn. *Jacea nigra*, Gerard, 588. Top. Bot. 247. Syme, E. B. v. 31, t. 706. Nyman, 421. Fl. Oxf. 176. Native. Pascual. Meadows, heaths, pastures, chalk downs, railway-banks, &c. Common and generally distributed. P. May-Oct. First record. Sonning, Mr. S. Rudge, in *Herb. Brit. Mus.* 1800. *C. nigra*, Dr. Noehden, *Mavor's Agr. Berks*, 1809. (In the *Journ. Bot.* (1873) 139, Mr. Britten refers the Sonning plant to the var. *decipiens*.)

The aggregate species is one of the common plants of Berkshire, being found in every rural parish. It exists under several modifications, of which the chief are the radiate form, and the one in which the anthode consists entirely of tubular florets: the latter is usually considered to be the typical plant in Britain; in its extreme form it is non-radiant; the peduncles are much thickened under the anthodes, and the phyllaries are concealed by densely imbricated black appendages which have very long cilia. This plant occurs in damp meadows in the northern part of the county, and by field-borders on stiff soil, as near Didcot, Hagborne, &c. Occasionally it is found with radiant florets, especially in the Thames meadows and in fields in the Pang, Kennet, and Loddon districts. I should refer Mr. Rudge's Sonning specimen in *Herb. Brit. Mus.* to this form rather than to *C. decipiens*.

A form from Ilsley is closely allied to if not identical with *C. nemoralis*, Jordan, Pugill. Pl. Nov. 104.

Sometimes the phyllaries are much more loosely imbricated than at other times in both of these forms.

The more frequent plant of chalk downs is one with radiant flowers and with the peduncle less swollen at the apex and with paler brown phyllaries; this appears to be the

Var. *DECIPENS*, Bab. Man. Brit. Bot. ed. 5, 188, and Syme, l.c. (? *C. decipiens* of Thuill. Fl. Par. ed. 2, 445, of which I have not seen a type specimen).

Syme says he has seen it from Berkshire, and it has been recorded by the Rev. W. M. Rogers in *Journ. Bot.* (1887) 342 (and distributed by him through the *Bot. Exch. Club* from Ilsley in 1887), 'from Langley, Hampstead Norris, Beedon Common, Catmore, Ilsley Downs in great

quantity as an extreme dwarf form, as on Salisbury Plain. He did not see a plant which he would call typical *nigra*. Mr. Britten also recorded it from Wargrave in his *Contributions*, 1871, and Dr. F. Arnold Lees, in the *Rep. of Bot. Rec. Club* for 1883, p. 42, alludes to the Berkshire and Oxfordshire plant as *C. decipiens*, Thuill. He describes it as 'smaller, less branched, lower leaves more deeply cut and sinuate, upper much narrower than in *nigra*, var. *radiata*. Flowers too of a different hue—a clear rose-pink. Involucral bract-appendages short, light brown. *Bab. Man.* ed. 8, has leaf broader than in *eu-nigra*, but the reverse is the case in all the many and very characteristic examples he examined *in situ* in Berks and Oxon in 1883.'

Var. *DECIPIENS*, Bab. and Syme, is abundant on the chalk downs, and in the meadows between Henley and Maidenhead.

Our Berkshire plants are perhaps best treated as follows:—

C. NIGRA, Linn. Flower dark purple, usually with only tubular florets, phyllary-appendages long, blackish brown.

forma integra, leaves entire. *f. sinuata*, leaves sinuately cut. *f. minor*, a dwarf form. *f. radiata*, with radiate flowers. *f. laxa*, phyllaries not closely imbricated.

Var. *DECIPIENS*, Bab. and Syme. Flowers lighter coloured, often of a bright rose-pink and always radiate, the phyllary-appendages paler brown than the foregoing, and smaller, not so closely covering the receptacle. This varies considerably as—*f. integra*, *f. sinuata*, *f. minor*, *f. pallens*, with very pale phyllary-appendages.

If we were to follow the example of some botanists and reject intermediate forms, we should have little difficulty in making two sub-species of extreme forms of *C. nigra*; but in nature we do not meet with these sharp lines of demarcation, and it is almost impossible to distinguish the pale phyllaried form of radiate *nigra* from the var. *decipiens*. Our forms of *C. nigra* are certainly worthy of more critical attention than I have been able to give them. Jordan has described a number of species which are allied to and may be identical with some of the Berkshire plants.

C. nigra occurs in all the bordering counties.

C. Scabiosa, Linn. Sp. Pl. 913 (1753). Greater Knapweed, Matfellow.

Scabiosa major squammatis capitulis, C. B. Pin. 269. *Jacea major*, Gerard, 588.

Top. Bot. 247. Syme, E. B. v. 33, t. 708. Nyman, 424. Fl. Oxf. 177. Native. Agrestal. Cornfields, field-borders, hedge-sides, chalk downs, &c. Locally common, especially on the central chalk plateau of the county, and occurs in all the districts. P. May–October.

First record. *C. Scabiosa* (without locality), in *Russell's Cat.* 1839.

C. Scabiosa occurs in all the bordering counties.

C. Cyanus, Linn. Sp. Pl. 911 (1753). *Blue Bottle, Blue Cornflower.*

Cyanus vulgaris, Gerard, 592.

Top. Bot. 247. Syme, E. B. v. 34, t. 709. Nyman, 424. Fl. Oxf. 177.
Colonist. Agrestal. Cornfields, especially on light sandy soils. Local.
A. or B. June-September.

First record. Sonning, Mr. S. Rudge, *Herb. Brit. Mus.* 1800. *C. Cyanus*,
Mavor's Agr. Berks, 1809.

1. **Isis.** Carswell, *Miss M. Niven*. Very plentiful near Appleton,
Miss F. M. Parker. Near Pusey. Near Faringdon. Cumnor.
2. **Ock.** Near Tubney, *Walker*. Near Happy Valley, *Sister Jane*
Frances. South Hinksey. Boar's Hill. Frilford, *Fl. Oxf.* Near
Cothill. Shippon. Coxwell. Long Wittenham. South Moreton.
Near Culham. Didcot. Kingston Bagpuze, &c.
3. **Pang.** Bradfield, *Jenkinson*. Pangbourn, *Tufnail*. Bucklebury.
Tidmarsh. Tilehurst. Near Unwell Wood. Moultsford.
4. **Kenet.** Newbury, *Russell's Cat.* Padworth. Burghfield.
Mortimer. Kintbury. Welford.
5. **Loddon.** Cornfields at the top of Cookham Down, &c., *Mill*.
Wellington College, *Penny*. Common on gravelly soil about Park
Place, Stanton. Windsor, *Everett*. Sonning, *Rudge*. Hurst, *Melville*.
Arborefield, *Taylor*. Bray. Twyford. Wargrave. Near Loddon
Bridge. Farley Hill. Early. Wokingham. Barkham. Brack-
nell. Near Old Windsor. Near Binfield. Finchampstead.
Crowthorn, &c.

C. Cyanus is recorded for all the bordering counties.

****C. SOLSTITIALIS**, Linn. Sp. Pl. 917 (1753). *St. Barnaby's Thistle.*

Carduus Solstitialis, Gerard, 1003.

Comp. Cyb. Br. 532. Syme, E. B. v. 38, t. 712. Nyman, 430. Fl. Oxf. 177.
Casual. Cornfields. Sporadic. Local. A. June-August.
First reported for Berkshire by Mr. Bolton King in 1878.

2. **Ock.** West Hagborne, *Miss Fry*, 1896.
3. **Pang.** In a cornfield
near Basildon, 1895.
4. **Kenet.** Near the goods station at
Newbury, *Jackson*.
5. **Loddon.** By the river near the Albert
Bridge, Windsor, *Bolton King*.

C. Solstitialis is recorded as a casual from Oxfordshire, Surrey, and Wilts.

[**C. CALCITRAPA**, Linn. Sp. Pl. 917 (1753). *Star Thistle.*

Syme, E. B. v. 37, t. 711. Is recorded for Surrey and Hants.]

****C. MONTANA**, Linn. Sp. Pl. 911 (1753).

Casual. Occurred as a garden outcast on waste ground near Grandpont.
Known from *C. Cyanus* by its much larger flowers, broader leaves, &c.

CICHORIUM, Linn. Gen. n. 825 (Tournefort, *Inst.* t. 272).

C. Intybus, Linn. Sp. Pl. 813 (1753). *Wild Chicory.*

C. sylvestre (Gesner), Gerard, 222. *Intybus agreste*, Cordus.

Top. Bot. 237. Syme, E. B. v. 122, t. 786. Nyman, 472. Baxt. t. 417. Fl. Oxf. 185.

Native. Viatical. Waysides, cultivated fields, borders of fields, &c. Abundant on the Chalk, Oolite, and Gault, and widely distributed in the county except in the forest and heath tracts of the south-west. P. May–October.

First record. *C. intybus*, Cichory or Endive, Dr. Noehden, *Mavor's Agr. Berks*, 1809.

Pink-flowered forms (*f. rosea*) have been seen at Cothill and Dry Sandford.

C. Intybus occurs in all the bordering counties.

The cultivated plant is var. *sativum*, Bischoff, Beitr. 26.

ARNOSERIS, Gaertn. Fruct. ii. 355 (1791).

A. pusilla, Gaertn. l. c. *Small Swine's Succory.*

Hyoseris minima, Linn. Sp. Pl. 809 (1753). *Arnoseris minima*, Link, Enum. Hort. Berol. ii. 294 (1822). *Lapsana pusilla*, Willd. Sp. Pl. iii. 1623.

Top. Bot. 237. Syme, E. B. v. 127, t. 788. Nyman, 474. Fl. Oxf. 185. Colonist. Agrestal. Cornfields lately reclaimed from heathlands. Very rare. A. July–August.

First found by Mr. W. W. Fisher, M.A., in 1891, and recorded by the author in the *Journ. Bot.* 307, 1891.

5. Loddon. In a sandy cornfield near Crowthorn, 1891, Mr. W. W. Fisher.

Arnoseris is recorded for the bordering counties of Surrey, Bucks, and Hants.

LAPSANA, Linn. Gen. n. 823 (*Lampsana*, Tournefort, Inst. t. 272).

L. communis, Linn. Sp. Pl. 811 (1753). *Nipple-wort.*

Top. Bot. 237. Syme, E. B. v. 125, t. 787. Nyman, 474. Fl. Oxf. 186. Native. Viatical. Agrestal. Hedges, waysides, cultivated ground, open woods, &c. Very common and generally distributed. A. May–December.

First record. *L. communis*, Dr. Noehden, *Mavor's Agr. Berks*, 1809. With *Uredo Cichoracearum*, DC., and *Aecidium Compositarum* on it about Oxford, Baxt. *Phaen. Bot.* 150, 1835.

Lapsana communis is found in all the bordering counties.

PICRIS, Linn. Gen. n. 812 (*Helminthotheca*, Vaill. A. G. 1721).

P. Hieracioides, Linn. Sp. Pl. 792 (1753). *Hawkweed Ox-tongue.*

Hieracium asperum, Ger. Em. 298. Linnaeus wrote the specific name with a capital.

Top. Bot. 222. Syme, E. B. v. 136, t. 796. Nyman, 466. Fl. Oxf. 184.

Native. Glareal. Hedge-banks, field-borders, limestone or chalk pastures, or in clover crops, &c. Local. B. or P. June–October.

First recorded in *Mr. Baxter's MSS.* 1812. Published in *Russell's Cat.* 1839.

2. **Ock.** Between Ferry Hinksey and Cumnor Hurst, *Baxter*, see also *Walk. Fl. Marcham, Walker.* Denchworth, *Wait.* Boar's Hill, *Fl. Oxf.* Letcombe. Blewbury. Didcot.

3. **Pang.** Streatley, *Sister Jane Frances.* Bradfield, *Jenkinson.* Pangbourn, *Tufnail.* Near Bottom Farm. Sulham. Very abundant near Reading on chalk ballast. Near Basildon. Moulsoford, &c.

4. **Kennet.** Cornfields about Speen, *Russell, l. c.* Sulhampstead, *Tufnail.* Near Hungerford. Near Lambourn. Near West Ilsley. Shefford.

5. **Loddon.** Wellington College, *Penny.* Remenham, *Stanton.* Wargrave, *Melvill.* Loddon Bridge. Maidenhead. Hurley. Clewer. Waltham. Twyford, &c.

Sometimes the anthodes are in a regular umbellate corymb when it is the *P. ARVALIS*, Jord. ex Bor. *Fl. Centre Fr.* ed. 3. ii. 371.

Picris Hieracioides is found in all the bordering counties.

P. Echioides, Linn. *Sp. Pl.* 792 (1753). *Ox-tongue.*

Helminthia echioides, Gaertn. *Fruet.* ii. 368.

Top. Bot. 221. Syme, E. B. v. 137, t. 797. Nyman, 466. *Fl. Oxf.* 183.

Native. Viatical. Septal. Waysides, hedges, and woods, occupying different areas from the foregoing species, which is restricted to calcareous or arenaceous soils, while this is found on stiff clayey soil. A. or B. Locally common and widely distributed. July–Oct.

First record. *Lange de beefa.* It grows on ye sides of ye ditches as ye go from Botley Causeway to Medley, *MS. in Lyte's Herball*, 1660. Sonning, *Mr. S. Rudge in Herb. Brit. Mus.* 1800. *P. echioides*, Mr. Bicheno in *Mavor's Agr. Berks*, 1809.

1. **Isis.** Near Botley, *MS. in Lyte.* Wytham. Longworth. Appleton. Shrivenham. Buscot. Near Faringdon. Cumnor, &c.

2. **Ock.** Wittenham Wood, near Day's Lock, Wootton (*Fl. Oxf.*). Didcot. Challow. Uffington. Abingdon. Marcham. Hagborne. Near Radley. Kennington. Hanney.

3. **Pang.** Tidmarsh. Bradfield. Ashridge. Tilehurst.

4. **Kennet.** Cornfields about Speen, *Bicheno, l. c.* Mortimer. Catmore. Theale.

5. **Loddon.** Sonning, *Rudge.* Crazy Hill, *Stanton.* Shinfield, *Tufnail.* Ashley Hill. Stubbing's Heath. Waltham. Ruscombe. Twyford. Bray.

P. Echioides (so written by Linnaeus in *Sp. Pl.* ed. 3, 114) occurs in all the bordering counties.

CREPIS, Linn. Gen. n. 819 (*Hieracioides*, Vaill. A. G. Paris, 1721).

C. foetida, Linn. Sp. Pl. 807 (1753). *Stinking Hawkweed*.

Barkhausia foetida, F. W. Schmidt, Samml. Phys. Aufs. i. (1795) 283. Top. Bot. 235. Syme, E. B. v. 157, t. 815. Nyman, 458. Fl. Oxf. 182. Colonist. Woods, rough ground. Very rare. A. or B. July–August. First recorded by Mr. G. G. Mill in *Phyt.* i. 989, 1843.

3. Pang or 4. Kennet. Near Reading, *Rep. of Bot. Exch. Club* for 1870. See *Journ. Bot.* (1871) 184.

5. Loddon. 'This plant, which formerly grew, though very sparingly, in Bisham Wood, does not appear to grow there any longer, but it occurs in the waste ground on the north side of the Great Western Railway close to Maidenhead Station, though but sparingly. It may easily be distinguished in any state by its root, which has a powerful smell of bitter almonds,' Mill, l. c.

C. foetida, which I have been unable to find in Berkshire, is recorded on very old authority for Oxfordshire, and with some doubt for Bucks and Surrey.

C. taraxacifolia, Thuill. Fl. Par. ed. 2, 409 (1799), not of Willdenow.

Barkhausia taraxacifolia, DC. Fl. Fr. iv. 43, not of Sprengel.

Top. Bot. 235. Syme, E. B. v. 158, t. 816. Nyman, 459. Fl. Oxf. 182. Colonist. Agrestal. Cornfields, grass-crops, railway-banks, &c. Locally common and rapidly increasing and likely to become permanently established in the county. A. or B. May–August.

First record. Maidenhead, the author in *Rep. Bot. Rec. Club* for 1881.

1. Isis. Clover field, Cumnor. Longworth. Near Appleton.
2. Ock. Boar's Hill. Shippon. Kennington. Didcot. Wootton.
3. Pang. Pangbourn, *Tufnail*. Bucklebury. Hawkrigde. Bradfield. Tilehurst. Compton.
4. Kennet. Mortimer, *Tufnail*. Theale. Reading. Hodcott. Southcote.
5. Loddon. Maidenhead, the author, l. c. Sonning, *Tufnail*. Near the Albert Bridge, Windsor, *Bolton King*. Common about Bisham and Hurley. Wargrave. Wyford. Sunninghill. Old Windsor. Cockpoll Green. Near Park Place. Ruscombe.

C. taraxacifolia is recorded for all the bordering counties except Bucks, but I have seen it near Taplow in that county.

****C. SETOSA**, Haller, fil. in Roem. Arch. i. (1797) 1.

C. hispida, Waldst. & Kit. Pl. Rar. Hung. i. 42, t. 43. *Barkhausia setosa*, DC. Fl. Fr. ed. 3, v. 44. Syme, E. B. v. 159, t. 817. Nyman, 459. Fl. Oxf. 183.

Casual. Agrestal. Cornfields. Very rare. A. July–August.

2. Ock. By the railway near Oxford with other casuals in 1892. In a clover field near Cumnor.
5. Loddon. Wellington College, a single plant near the sewage works, Penny, 1874.

As a casual it is recorded for all the bordering counties except East Gloucestershire.

****C. NICAEENSIS**, Balb. Misc. ii. 28 (1804-6) and ex Pers. Syn. ii. 376.

Reichb. Ic. Fl. Germ. et Helv. xix. t. 1440. Nyman, 457.

Casual or colonist. Agrestal. Cultivated fields. Local and rare. A. or B. June-August.

First recorded by the author in the *Rep. of Exch. Club* for 1893.

1. **Isis**. Meadows near Wytham. 8. **Pang**. Near Tilehurst.

5. **Loddon**. Near Ascot, by the side of the railway.

Var. **EGLANDULOSUS**, Crépin, Notes Pl. Rares ou Crit. de la Belg. fas. ii. 64 (1862), occurred with the type at Wytham and Tilehurst.

C. nicaeensis occurs in Oxfordshire at Headington Wick, and is also recorded for Hants.

[**C. PALUDOSA**, Moench, Meth. 535 (1794). *Hieractium paludosum*, Linn. Sp. Pl. Syme, E. B. v. 163, t. 821. Is recorded in the Wellington Coll. List, but as an error for some other species. *C. paludosa* is not likely to occur in Berkshire.]

C. virens, Linn. Sp. Pl. ed. 2, 1134 (1762). *Smooth Succory Hawkweed*.

C. tectorum, Huds. Fl. Angl. 301 and Sm. E. B. t. 1111, not of Linn.

C. capillaris, mihi not of Wallroth. *Lapsana capillaris*, Linn. Sp. Pl. 812 (1753). *Hieracium Aphacoides*, Gerard, 234.

Top. Bot. 227. Syme, E. B. v. 160, t. 818. Nyman, 457. Fl. Oxf. 182.

Native. Agrestal. Cultivated fields, meadows, dry banks, sides of roads, heaths, &c. Very common and widely distributed. B.

May-Sept. One of our most ubiquitous and polymorphic species.

First record. *C. tectorum*, without locality in *Russell's Cat.* 1839. *C. virens*, everywhere [about Marlow], Mr. G. G. Mill in *Phyt.* i. 989, 1843.

C. virens exists under several modifications, as might be expected from its not being restricted to one kind of soil or situation. The more distinct of these are—

Var. **AGRESTIS** (Waldst. & Kit. Pl. Rar. Hung. iii. 244, ex Willd. Sp. Pl. iii. 1602, as a species). This plant bears considerable resemblance to *C. biennis*, as the anthodes are twice as large and the stigmas are darker than those of *C. virens*.

It has been noticed in all the districts. 1. **Isis**. Wytham. Longworth. Coleshill, &c. 2. **Ock**. Wootton. South Hinksey. Radley. Dideot, &c. 3. **Pang**. Tidmarsh. Tilehurst, &c. 4. **Kenet**. Theale. Kintbury. Sulhampstead. Southcote, &c. 5. **Loddon**. Early. Twyford. Waltham. Warfield. Finchampstead. Bray. Clewer, &c.

Var. **DIFFUSA** (DC. Cat. Hort. Monsp. 98, as a species).

A slender diffuse form, common on dry heaths and sandy roadsides, having smaller flowers and pubescent phyllaries, characters which may possibly be caused by the place of growth, since M. Lloyd says that seeds of *C. diffusa* yielded a leafy-stemmed plant 6-9 decimetres high.

Var. *RUNCINATA*, Bischoff, Beitr. zur Fl. Deutsch. & Schweiz, 277 (1851), Reichb. Ic. Fl. Germ. et Helv. xix. t. 1451, f. 2, is a form with more deeply cut leaflets and has been seen at Hinksey, &c.

Sub-var. *INTEGRIFOLIA*, Coss. et Germ. Fl. Par. 440 (1845), has been seen on Boar's Hill, at Mortimer, &c.

C. virens occurs plentifully in all the bordering counties.

C. biennis, Linn. Sp. Pl. 807 (1753).

Hedypnois biennis, Huds. Fl. Angl. ed. 2, ii. 342 (1778).

Top. Bot. 227. Syme, E. B. v. 161, t. 819. Nyman, 456. Fl. Oxf. 183. Colonist. Agrestal. Cultivated fields. Rare, but gradually spreading, and more frequent in dry hot years, as in 1895-6. B. May-Aug. First found by Miss Fry and the author in 1891. Recorded in *Bot. Exch. Club*, 1891.

2. **Ock.** Near Hagborne, *Miss Fry*. Didcot.

3. **Pang.** Tilehurst, *Tufnail*. Plentiful in grass crops near Basildon and Streatley. Near Hurley.

4. **Kennet.** West Ilsley.

5. **Loddon.** Maidenhead. Sonning. Hurst, *Tufnail*.

C. biennis has been recorded for all the bordering counties except E. Gloucestershire; in Eastern England it has the appearance of being native.

HIERACIUM, Linn. Gen. n. 818 (Tournefort, Inst. t. 267).

H. Pilosella, Linn. Sp. Pl. 800 (1753). *Mouse-Ear Hawkweed*.

Pilosella repens, Gerard, 513.

Top. Bot. 229. Syme, E. B. v. 165, t. 822. Nyman, 454. Hanb. Mon. t. 1. Fl. Oxf. 181.

Native. Ericetal. Heaths, dry banks, pastures, &c. Rather common and widely distributed, preferring sandy or gravelly soil. P. May-August.

First record. *H. pilosella*, Dr. Noehden, *Mavor's Agr. Berks*, 1809.

In the heathy districts it is a very prevalent feature in the vegetation. Between Wokingham and Long Moor a form occurs, which is very near to var. *pilosissimum*, Wallr. Sched. Crit. 406 (1822) = *H. Pelterianum*, Méral, *Nouv. Fl. Par.* 305 (1812).

H. Pilosella is found in all the bordering counties.

H. murorum, Linn. Sp. Pl. 802 (1753), and Herb. *Golden Lungwort*.

Top. Bot. 230. Syme, E. B. v. 190, t. 846. Nyman, 444. Fl. Oxf. 181.

Native. Mural, &c. Walls and dry places. Very rare. P. May-July. First certainly found in Berkshire by the author and recorded in this *Flora*.

1. **Isis.** Wytham, very rare as the var. *pellucidum*, Laestad.

4. **Kennet.** Downs above W. Woodhay. Walls at Elcot, *Reeks*, in *Britt. Contr.* 1871; but these almost certainly belong to *H. vulgatum* or *H. sciaphilum*.

5. **Loddon.** A few specimens of the true plant occurred about the racket courts, &c., of Wellington College in 1892.

H. murorum is recorded for all the bordering counties except Bucks. It occurs on College walls in Oxford as the var. *pellucidum*, *Laest.*

H. vulgatum, Fries, Nov. Fl. Suec. ed. 2, 258 (1828), ed. 1, 76.

H. silvaticum, Lam. Fl. Fr. ii. 96 (1778), and Sm. E. B. t. 2031.

Top. Bot. 231. Syme, E. B. v. 197, t. 650. Nyman, 443. Fl. Oxf. 180. Native. Sylvestral. Woods and hedge-banks on sandy soil. Local and rare. P. May–September.

First certain record. Sandhurst, *the author in this Flora*.

1. **Isis.** Near Faringdon. Buckland.

5. **Loddon.** In a few stations near Sandhurst.

Under the name *H. silvaticum*, Mrs. Russell recorded in the *Newbury Cat.* 1839, what was probably *H. sciaphilum* from Fence Wood and Snelsmore Common. Probably to *H. sciaphilum* belongs Mr. Boswell's 'vulgatum' from Bagley Wood (*Phyt.* iv. (1860) 100), and his 'maculatum' from Buckland, as well as the *vulgatum* of Rev. C. W. Penny from Finchampstead (see *Journ. Bot.* (1873) 139).

H. vulgatum is recorded for all the bordering counties; but as in central England *H. sciaphilum* has so often been mistaken for it, the occurrence of restricted *H. vulgatum* in these counties will have to be verified. In Beck's Fl. Nieder-Österreich, *H. sciaphilum* is made a form of *H. vulgatum*, and I should be content to call it a variety.

H. sciaphilum, Uechtritz in Baenitz Herb. Europ. and Schultz, Herb. Norm. n. 2363.

H. vulgatum, Fl. Oxf. in part. *H. vulgatum*, f. *sciaphilum*, Beck.

Native. Dry heathy places. Local. P. June–August.

First probable record. *H. silvaticum*, Russell's *Newbury Cat.* 1839, and as *H. sciaphilum*, by the author in *Journ. Bot.* 41, 1896.

1. **Isis.** Tubney.

2. **Ock.** Rather common on Boar's Hill. In Bagley Wood [*vulgatum*, Boswell]. Letcombe Copse.

3. **Pang.** Fence Wood [*H. silvaticum*, Mrs. Russell]. Cold Ash Common. Basildon. Tidmarsh. East Ilsley. Streatley. By the railway near Reading.

4. **Kennet.** Near Newbury. Enborne. Snelsmore. Aldermaston. Burghfield. Mortimer. Kintbury. Hampstead Marshall. Inkpen.

[Probably Mr. Reeks' *H. murorum* from Woodhay and Elcot was this plant.]

5. **Loddon.** Railway-side near Reading. Twyford. Waltham.

Near Maidenhead. Sunningdale. Bracknell. Barkham. Long Moor. Windsor Park. Finchampstead. Farley Hill. Near Virginia Water. Near Sandhurst.

Nearly all the records of *H. vulgatum* in Berkshire probably belong to this plant, which also occurs in Hants, near Enborne; in Bucks, near Taplow; in Surrey, and in Oxfordshire.

If this plant is retained as a distinct species from *H. sciaphilum* of Dicht. in Deutsche Bot. Monatsb. ii. (1884) 59, the name will have to be altered from *sciaphilum* to *Uechtritizianum*. There is also a *H. Sciaphilum* of Jordan, which is said to be synonymous with *H. vulgatum*.

H. rigidum, Hartm. Handb. Skand. Fl. ed. 1, 300 (1820).

Var. *SCABRESCENS*, Johanss. See Dahlst. Hierac. Exsicc. fas. ii. 100 (1889).

Native. Ericetal. Dry sandy places. Very local. P. July–September. First recorded by the author in this *Flora*.

2. Ock. On the summit of the Boar's Hill Range, 1884.

3. Pang. On chalk rubble near Reading. Near Bradfield.

4. Kennet. Near Kintbury. Enborne. Mortimer. Padworth.

5. Loddon. Farley Hill. Sandhurst. Crowthorn. Near Wokingham. Sandhurst.

Var. *TRIDENTATUM* (Fries, Symb. Hierac. 171 (1848), as a species).

Top. Bot. 234. Syme, E. B. v. 201, t. 852. Nyman, 441. Fl. Oxf. 180.

First recorded as *H. tridentatum*, Bagshot Heath, Mr. H. C. Watson in Britt. Contr. 1871.

3. Pang. De la Bere Woods, Tufnail.

4. Kennet. Aldermaston. Mortimer. Silchester.

5. Loddon. Bagshot Heath, Watson. Bulmarsh. Sindlesham, Tufnail. Winkfield. Near Ascot. Sunninghill. Finchampstead. Bracknell. Long Moor.

The plants recorded as *H. tridentatum* in the foregoing list in many cases doubtless refer to the var. *scabrescens*. Those inserted on my own authority were named *H. tridentatum* some time since by Mr. Hanbury.

H. rigidum does not appear to be recorded for E. Gloucestershire or Bucks.

H. umbellatum, Linn. Sp. Pl. 804 (1753). Narrow-leaved bushy Hawkweed.

H. intybaceum, Gerard, 234, not of Linn.

Top. Bot. 234. Syme, E. B. v. 202, t. 853. Nyman, 439. Fl. Oxf. 180.

Native. Ericetal. Hedge-banks, in heathy places, on sandy or gravelly soil. Locally common. P. July–September.

First record. Bagley Wood, Baxt. Phaen. Bot. 165, 1835.

2. Ock. Bagley Wood, Baxt. Wootton, Boswell. Boar's Hill, Fl. Oxf. Tubney, Walker. On a wall in Ock Street, Abingdon.

3. Pang. Fence Wood, Russell's Cat. De la Bere, Pangbourn, Tufnail.

Hermitage, *W. M. Rogers*. Oare. Curridge. Cold Ash. Bucklebury.

4. Kennet. Snelsmore, *Russell*, l.c. Mortimer, *Tufnail*. Inkpen. Silchester. Aldermaston. Sandleford. Greenham Common. Wickham.

5. Loddon. Wellington College, *Penny*. Bowsey Hill, Park Place, Stanton. Virginia Water, *Dewar in Herb. Brit. Mus.* 1882. Sandhurst. Long Moor. Winkfield. Ambarrow. Bearwood. Bracknell. Sunningdale. Ascot. Bagshot. Finchampstead. Risely. Barkham. Windsor Park. Early.

H. umbellatum is recorded for all the bordering counties except E. Gloucestershire.

- H. boreale**, Fries, Nov. Fl. Suec. ed. 1, 77 (1814-23). *Broad-leaved bushy Hawkweed*.

H. sabaudum, Huds. Fl. Angl. ed. 2, 345 (not of Linn.), and Smith, E. B. t. 349. *H. commutatum*, Beck (which is kept as a distinct species in Index Kewensis) in Lond. Cat. ed. 8.

Top. Bot. 235. Syme, E. B. v. 204, t. 854. Nyman, 438. Fl. Oxf. 179. Native. Ericetal. Heaths, dry woods, hedge-banks, &c. Local. Preferring gravelly or sandy soil. P. July-September.

First record. *Hieracium tertium*, Tab. *Chondrillae folio hirsutum*, C. B. Bobart in Ray, Syn. ed. 1, 237, 1690. Also *H. sabaudum*, Dr. Noehden, *Mavor's Agr. Berks*, 1809.

2. Ock. On Cumnor Hill and many other places about Oxford. Bobart, l.c. Wootton, *Boswell*. Bagley, *Baxter*, MSS. 1829. Boar's Hill, in Fl. Oxf. Wittenham Wood.

3. Pang. Cold Ash Common, *Russell's Cat.* Fence Wood, Hermitage, *W. M. Rogers*. Curridge. Oare. Bucklebury. Tilehurst.

4. Kennet. Snelsmore Common, *W. M. Rogers*. Mortimer, *Tufnail*. Theale. Brimpton. Greenham. Inkpen. Upton. Burghfield. Silchester. Aldermaston. Hampstead Marshall. Enborne. Wickham. Railway-bank near Reading.

5. Loddon. Between Henley and Twyford, on railway, Stanton. Winkfield. Bowsey Hill. Near Wargrave. Maidenhead. Bearwood. Loddon Bridge. Wokingham. Early. Bagshot. Bracknell. Wellington College. Sandhurst. Crowthorn. Finchampstead. Risely. Farley Hill. Ascot. Sunningdale. Long Moor.

H. boreale is recorded for all the bordering counties.

HYPOCHOERIS, Linn. Gen. n. 822 (Vaill. A. G. 811).

H. glabra, Linn. Sp. Pl. 810 (1753). *Smooth Hawkweed*.

Top. Bot. 225. Syme, E. B. v. 128, t. 789. Nyman, 470. Fl. Oxf. 185.

Native. Ericetal. Open sunny spots on sandy and gravelly heaths.

Very local. A. June–August.

First recorded by the author in *Rep. Bot. Exch. Club*, 1891.

1. **Isis**. Near Buckland, *Miss M. Niven*.

5. **Loddon**. Near Wellington College. Ambarrow. Near White-moor Bog. Bracknell. By railway between Bracknell and Ascot.

It is quite likely that this very restricted area may be enlarged by carefully searching the many sandy heaths in the Kennet and Pang districts, but so far the plant has eluded my observation in these localities. Our plant comes under the var. *a*, *genuina* of Syme, E. B. l. c., but is scarcely typical.

H. glabra is recorded for all the bordering counties except Oxfordshire.

H. radicata, Linn. Sp. Pl. 810 (1753). *Long-rooted Hawkweed, Cat's-ear*.

Top. Bot. 225. Syme, E. B. v. 129, t. 790. Nyman, 470. Fl. Oxf. 185.

Native. Pascual, &c. Pastures, meadows, heaths, waste places, &c.

Very common and generally distributed, especially abundant on gravels and sands. P. May–September.

First record. *H. radicata*, *Mr. Baxter's MSS.* 1823. Published in *Russell's Cat.* of 1839.

A very variable plant both in size and in degree of pubescence; the extreme hispid state is the var. *HISPIDA*, Peterm. Fl. Lips. 574; the dwarf form, which is frequent in the grassy turf of the dry commons, is var. *MINOR*, Schultz et Bipon. Nov. Act. Lipp. xxi. 127. See *Reichb. Ic. Fl. Germ. et. Helv.* xix. 22, t. 1398, f. 1.

H. radicata is found abundantly in all the bordering counties.

LEONTODON, Linn. Gen. n. 817 (*Taraxaconoides*, Vaill.).

L. hirtum, Linn. Syst. ed. 10, ii. 1194.

Thrinicia hirta, Roth, Cat. i. 98. *Apargia hirta*, Scop. Fl. Carn. ii. 114 (1772). *Hedynois hirtum*, Sm. E. B. t. 555 (1799).

Top. Bot. 223. Syme, E. B. v. 131, t. 792. Nyman, 470. Fl. Oxf. 185.

Native. Glareal, &c. Sandy and gravelly pastures, heaths, and roadsides. Locally common. A. B. or P. May–September.

First record. *Hieracium pumilum saxatile asperum praemorsa radice*, C. B. . . . divers other places about Oxford, Bobart in *Ray, Syn.* 73, 1696. *Thrinicia hirta* in *Russell's Newbury Cat.* 1839.

1. **Isis**. Wytham. Near Pusey. Near Faringdon. Coxwell.

2. **Ock**. About Oxford, *Bobart*. Boar's Hill. Frilford. Besilsleigh. Tubney. Sunningwell. Near Radley. Ferry Hinksey. Cumnor Hurst, &c.

3. **Pang**. Streatley, *Pamplin*. Near Beedon, *W. M. Rogers*. Near Unwell Wood. Tilehurst. Cold Ash Common. Bucklebury. Bradfield. Hermitage. Oare. Frilsham.

4. Kennet. Newbury, *Russell's Cat.* Snelsmore. Greenham. Wickham. Mortimer. Burghfield. Inkpen. Kintbury. Sulhampstead. Theale. Padworth. Silchester, &c.
5. Loddon. Hurst Grove, on the lawn, *Melvill*. Reading. Early. Sonning. Ruscombe. Wargrave. Hurley. Bisham. Stubbings's Heath. Waltham. Pinkney's Green. Binfield. Bray. Clewer. Bagshot. Sandhurst. Finchampstead. Ambarrow. Bracknell. Ascot. Wokingham. Bearwood. Windsor Park. Frogmore, &c.

Var. *LASIOLAENA*, mihi, *Thrincia hirta*, var. *lasiolaena*, Bischoff, Beitr. Fl. Deutsch. & Schweiz. (1851) 43. The plant with glabrous periclines, *leiolaena* (Bisch. l. c.), sub *Thrincia* = var. *psilocalyx*, DC. Prod. vii. 99, also occurs.

Leontodon hirtum is recorded from all the bordering counties.

L. hispidum, Linn. Sp. Pl. 799 (1753). *Rough Dandelion.*

Apargia hispida, Hoffm. Deutsch. Fl. ed. 2, ii. 113. *Hedypnois hispidum*, Huds. Fl. Angl. 340 (1778).

Top. Bot. 224. Syme, E. B. v. 133, t. 793. Nyman, 468. Fl. Oxf. 184. Native. Pratal and pascual. Meadows, pastures, grassy chalk downs, waysides, &c. Rather common and widely distributed. A noticeable plant on the chalk downs and in calcareous pastures. P. May-September.

First record. *Apargia hispida*, South Hinksey, Mr. Baxter, MSS. 1827. Wytham, Mrs. Westwood, 1835, in *Herb. Druce*. Published in *Russell's Cat.* 1839.

The very large form, which occurs in calcareous meadows at Hurley, is probably the var. *ERICETORUM* (Klett Richter, Fl. Lip. 65, as *Apargia*). A small form, with more dentate and very hairy leaves, which occurs in dry fields near Radley, is probably the var. *CRISPATUS*, of *L. proteiformis* (Godr. in Fl. Fr. ii. 299).

L. hispidum is recorded for all the bordering counties.

Obs. In Mavor's Agr. Berks *L. officinale*, *L. palustre*, and *L. Tarazaci* are given; one of these may possibly refer to this species.

L. autumnale, Linn. Sp. Pl. 798 (1753). *Yellow Devil's-bit.*

Apargia autumnalis, Hoffm. Deutsch. Fl. ed. 2, ii. 113. *Hedypnois autumnale*, Huds. Fl. Angl. 341 (1778).

Top. Bot. 224. Syme, E. B. v. 134, t. 794. Nyman, 469. Fl. Oxf. 185. Native. Pascual, &c. Meadows, pastures, waysides, chalk downs, wall-tops, &c. Abundant throughout the county and the commonest species of its genus. P. May-September.

First record. Sonning, Mr. S. Rudge, in *Herb. Brit. Mus.* 1800. *L. autumnale*, Dr. Noehden, *Mavor's Agr. Berks*, 1809.

L. autumnale is a very variable plant. Sometimes the leaves are

almost entire, at others they are deeply pinnatifid, with narrow linear segments. The leaves are sometimes glabrous, at others hairy. The anthode varies considerably in size, and the phyllaries are sometimes glabrous (*f. glabra*), at others covered with woolly hairs, when it is the var. *PRATENSIS*, Koch, Syn. Fl. Germ. 418 (1837). This variety is by no means unfrequent in the Thames meadows, as at Wytham, Kennington, Radley, Moulsoford, Reading, Sonning, and Cookham.

The dwarf plant with one anthode appears to be the var. *simplex*, Duby. Bot. Gall. 308. By the railway near Hampstead Norris specimens with very hairy leaves have been found, and with stems over two feet high.

L. autumnale is an abundant plant in all the bordering counties.

TARAXACUM [Web. ex] Wigg. Prim. Fl. Hols. 56 (1780).

T. officinale [Web. ex] Wigger, l. c. (1780). *Dandelion*.

T. Taraxacum, Karsten, Deutsch. Fl. 1138 (1880-83). *Leontodon Taraxacum*, Linn. Sp. Pl. 898 (1753). *Dens Leonis*, Brunf. and Gerard, 228. *Taraxacum Dens-leonis*, Desf. Fl. Atl. ii. 228.

Top. Bot. 236. Syme, E. B. v. 142, t. 802. Nyman, 437. Fl. Oxf. 179. Native. Pratal, &c. Meadows, waste ground, roadsides, chalk downs, cultivated fields, &c. Abundant and generally distributed. P. January-October.

First record. *Leontodon palustris*, Mr. Gotobed, in *Botanist's Guide*, 1805. Given as *L. officinale* and *L. Taraxacum*, by Dr. Noehden, in *Mavor's Agr. Berks*, 1809.

A very variable plant, as might be expected from its occurrence in widely differing situations. It has been divided into several species, but the characters by which they have been distinguished appear to be by no means constant. The best-marked forms are

Var. *ERYTHROSPERMUM* (Andrz. ex Bess. Enum. Pl. Volh. 75 (1822), as a species), Syme, E. B. v. 142, t. 803 = *T. officinale*, var. *cornutum*, DC. = var. *glaucescens*, Koch, Syn. Fl. Germ. 428 (1837).

It is found in dry, sandy, or calcareous soils, and is a smaller plant, with the leaves frequently glaucous and much more deeply divided, and with the outer phyllaries horned, lanceolate, and spreading. The achenes are dark red, hence the trivial name.

1. *Isis*. Near Besilsleigh. Tubney. Faringdon. Wytham, &c.
2. *Ock*. Tubney. Cherbury. Frilford. Boar's Hill. Cumnor. Sunningwell. Wittenham, &c.
3. *Pang*. Basildon. Frilsham. Bucklebury. Aldworth. Sulham. Tidmarsh. Tilehurst.
4. *Kennet*. Snelsmore. Wickham. Kintbury. Crookham. Padworth. Theale. Mortimer. Sulhampstead.
5. *Loddon*. Twyford. Early. Wokingham. Sandhurst.

Bracknell. Ascot. Bray. Windsor Park. Sandhurst. Cookham Dean.

Var. *LAEVIGATUM* (DC. Cat. Hort. Monsp. 149 (1813), as a species). Scarcely differs from the foregoing form except in the rather broader phyllaries, which are only loosely adpressed, and in the colour of the achenes, which in this variety are olive green.

It has been observed in all the districts, as at Wytham, near Windsor (*Bolton King*), Cumnor, Wootton, Dry Sandford, Pangbourn, Ashampstead, Sonning, Clewer, &c.

Var. *PALUSTRE* (DC. Fl. Fr. iv. 45, as a species), Syme, E. B. v. 143. t. 804 = *Leontodon palustre*, Sm. E. B. t. 553. *T. officinale*, var. *lividum*, Koch, Syn. Fl. Germ. 428 (1837), which is kept as a distinct species in Index Kewensis. In this variety the leaves are narrower and more entire than in the previous ones. The outer phyllaries are much broader at the base, are never horned, and are more adpressed than in the other forms. It is found in marshes and boggy ground.

1. *Isis*. In Wytham meadows. Cothill. Frilford. Near Marcham. Radley. Moultsford. Fence Wood. Snelsmore. Greenham. Aldermaston. Early. Long Moor. Bog in Windsor Great Park, *Gatobed*, l. c. Sunningdale, &c.

Var. *UDUM* (Jord. Pugill. 114, as a species).

Some of the records of *T. palustre* belong to *T. udum*, Jord., which has the leaves runcinate-pinnatifid and the outer phyllaries loosely imbricate.

When the leaves have red veins the plant is probably the *T. rubrinerve*, Jordan, Pugill. 115, and when they are blotched with brown, especially about the dorsal rib, it is the *T. maculatum*, Jord. l. c. 117; the latter was found by Mr. Baxter on Shotover Hill, Oxfordshire.

The common form is figured in Syme, E. B. v. t. 802. In this the outer phyllaries are strap-shaped and recurved, and the achenes are olive green or dull yellow and rather larger than those of the first two varieties.

A considerable number of plants which are met with cannot be satisfactorily referred to any of the above varieties. Koch, in *Flora* (1834), 49, says that from the seeds of *T. palustre* he obtained the greater number of the forms which have been distinguished as species.

The Dandelion is one of our best known and most abundant species, being especially noticeable in dry seasons, as then the grass and herbaceous plants being reduced in height the Dandelion has full opportunity to expand its bright golden flowers. In the dry spring of 1895 some fields of arable ground below the Ridgeway, near Letcombe, were so thickly covered with them as to be distinctly noticeable from Boar's Hill, and owing to the deeper yellow colour of the flowers could be distinguished from the fields of yellow mustard in the same locality.

Taraxacum occurs abundantly in all the bordering counties.

LACTUCA, Linn. Gen. n. 814 (Tournefort, Inst. t. 267).

L. virosa, Linn. Sp. Pl. 795 (1753), and of Parkinson. *Wild Lettuce*.

Top. Bot. 225. Syme, E. B. v. 145, t. 805. Nyman, 435. Fl. Oxf. 178. Native. Viatical. Hedges, waysides, and bushy places. Local. A. or B. July–September.

First recorded by Mr. Baxter in *Walker's Flora*, 1833.

1. **Isis**. By the side of the new road going from Botley to Eynsham, about 200 or 300 yards before you come to the bridge, July 30, 1831, *Baxter*, l. c. It appears to be now extinct in that station.
3. **Pang**. Rather plentiful in one locality between Pangbourn and Goring.
5. **Loddon**. Given in *Flower's Reading List*. Shinfield, *Tufnail*. Maidenhead, *Hurst*, MS. in *New Bot. Guide*. Near Billingbear Park, *Penny*. Between Bray and Holyport. Near Arborfield. Near Hurst. By the railway at Twyford, fine specimens. Abundant by the railway near Cookham, Bourne End, and Maidenhead.

The form *integrifolia* (var. *integrifolia*, S. F. Gray, Nat. Arr. ii. 417) sometimes occurs.

L. virosa is found in all the bordering counties, but it is scarcely native in Wiltshire. It is plentiful in gravel-pits near Taplow Station in Buckinghamshire.

[**L. SCARIOLOA**, Linn. Sp. Pl. ed. 2, 1119 (1762). Syme, E. B. v. 148, t. 806. It is recorded for Surrey.]

L. muralis, Meyer, Chlor. Hann. 431 (1836). Fresen. Taschenb. (1832) 484. *Ivy-leaved Wall Lettuce*, *Wall Ivy-leaf*.

Sonchus laevis muralis, Ger. Em. 293. *Prenanthes muralis*, Linn. Sp. Pl. 797.

Top. Bot. 226. Syme, E. B. v. 150, t. 808. Nyman, 435. Fl. Oxf. 178. Native. Rupestral and sylvestral. Stony woods, walls, dry hedge-banks on calcareous soil, for which it shows a decided preference. Locally common, but absent from considerable areas. A. or B. June–October.

First record. *Prenanthes muralis*, Dr. Noehden, in *Mavor's Agr. Berks*, 1809.

1. **Isis**. Wytham.
2. **Ock**. On old pollard willows in Bagley Wood, *Baxter*, 1831. Besilsleigh.
3. **Pang**. Streatley, *Pamplin*. Unwell Wood. Tilehurst. Near Reading. Basildon. Bradfield. Pangbourn. With copper-coloured leaves at Streatley. Englefield. Yattendon. Bucklebury.

4. Kennet. Sandford, *Weaver*. Newbury, *Russell's Cat*. Aldermaston. Padworth. Mortimer. Inkpen. Southcote. Near Woodhay.
 5. Loddon. Finchampstead, *Penny*. Bisham Wood, &c., *Mill*. Park Place, Rose Hill, *Stanton*. Sindlesham. Farley Hill. Swallowfield, *Tufnail*. Winkfield. Windsor Castle, *Dyer*, in *Phyt.* 1862. Barkham. Easthampstead. Culham Wood. Hurley. Bisham. Cookham. Wargrave. Long Moor. Sunninghill. Sonning. Very fine specimens on the walls of the north terrace, Windsor Castle. About the Grotto, Frogmore. In Windsor Park.
- L. muralis* is recorded for all the bordering counties.

SONCHUS, Linn. Gen. n. 813 (Tournefort, Inst. t. 268).

S. oleraceus, Linn. Sp. Pl. 794 (1753). *Sow-thistle*.

S. Laevis, Gerard, 229.

Top. Bot. 227. Syme, E. B. v. 153, t. 810. Nyman, 434. Fl. Oxf. 178. Native. Agrestal. Cultivated ground, waste places. Abundant throughout the county. A. April–September.

First record. *S. oleraceus*, *Mavor's Agr. Berks*, 1809.

There were two specimens of enormous size . . . at least eight feet high, proportionately large in all their parts, in a wet hollow, in the top part of Bisham Wood, Mr. G. G. Mill, in *Phyt.* i. 989, 1843.

A variable plant, especially in leaf-cutting. Many forms were described by the older authors.

Var. *INTEGRIFOLIA*, Wallr. Sched. Crit. 432, has been seen near Didcot, &c.

Var. *TRIANGULARIS*, Wallr. l. c., is not unfrequent.

Var. *LACERUS*, Willd. Sp. Pl. iii. 1513, has been seen near Twyford and West Hanney.

Var. *GLANDULOSUS* (Coss. et Germ. Fl. Paris, 436 (1845), as a sub-var.), has peduncles and involucre with glandular hairs.

Near Hampstead Norris, Maidenhead, &c.

Sonchus oleraceus is found abundantly in all the bordering counties.

S. asper, Hill. Herb. Brit. 47 (1769), and of Ger. Em. 291. *Sow-thistle*.

Top. Bot. 227. Syme, E. B. v. 154, tt. 811–12. Nyman, 434. Fl. Oxf. 178. Native. Agrestal. Cultivated ground and waste places. Common and widely distributed. A. May–September.

First recorded by Mr. T. B. Flower, in *Robertson's Env. of Reading*, 1843.

S. asper is a variable plant. A form with large flaccid leaves and few prickles is the var. *INERMIS*, Bischoff, Beitr. Fl. Deutsch. & Schweiz, 222 (1851), Reichenbach, Fl. Germ. et Helv. xix. t. 1411.

Var. *PUNGENS*, Bischoff, l. c. 222, Reichb. l. c. t. 1410, f. 2, is the very prickly form which is rather frequent.

Var. **GLANDULOSUS** (Coss. et Germ. Fl. Paris, 436 (1845), as a sub-var.), near Maidenhead, Abingdon, Hampstead Norris, Cothill.

The outline of the leaves, with their prominent auricles, is very beautiful.

S. asper occurs in all the bordering counties.

S. arvensis, Linn. Sp. Pl. 793 (1753). *Corn Sow-thistle.*

Top. Bot. 227. Syme, E. B. v. 154, t. 813. Nyman, 433. Fl. Oxf. 177. Native. Agrestal. Cultivated fields and banks of rivers, &c. Common and generally distributed. P. June–October.

First recorded in *Russell's Catalogue*, 1839, but without locality.

The form with glabrous pedicels, the var. **LAEVIPES**, Koch, Syn. Fl. Germ. ed. 2, ii. 498, occurred on Boar's Hill in 1892. The tall form sometimes found in marshes and by river-sides, as near Appleton, is the var. *elatior*, Coss. et Germ. Fl. Par. 437 (1845).

A narrow-leaved starved form occurred on clay-banks in the brick-field at Tilehurst in 1895.

One of our handsomest species, from its elegant leaves and showy flowers, affording a beautiful sight when growing, for instance, in a field of ripe beans, the rich dark brown pods of which contrast very effectively with the golden flowers and glossy leaves of the *Sonchus*.

S. arvensis occurs in all the bordering counties.

[**S. PALUSTRIS**, Linn. Sp. Pl. 793 (1753). *Marsh Sow-thistle.* Syme, E. B. v. 155, t. 814. Occurs in a single locality in Oxfordshire, where it was discovered by the Rev. H. J. Riddelsdell and the Rev. H. Elwell. It is one of the rarest British plants, not known from any of the other bordering counties.]

TRAGOPOGON, Linn. Gen. n. 810 (Tournefort, Inst. t. 270).

T. pratense, Linn. Sp. Pl. 799 (1753). *Goat's-beard.*

T. luteum, Lobel. and Gerard, Em. 735.

Top. Bot. 220. Syme, E. B. v. 139, t. 799. Nyman, 463. Fl. Oxf. 183. Native. Pratal. Meadows, waysides, railway-banks, &c. Not uncommon and widely distributed. B. May–July.

First record. *Goat's beard.* It grows plentifully about Oxford, MS. in *Lyte's Herbal*. *T. pratense*, Mr. Bicheno and Dr. Noehden, in *Mavor's Agr. Berks*, 1809. In the neighbourhood of Oxford the involucreum is much longer than the florets, in many instances twice as long, *Bast. Phaen. Bot.* 390.

1. **Isis.** Carswell, Miss M. Niven. Wytham. Near Lechlade. Cumnor.

2. **Ock.** Foxcombe Hill, Boswell. South Hinksey, Lawson, in *Herb. Oxf.* Abingdon, Whitwell. Denchworth, Wait. Besilsleigh. Shippington. Hagborne. Aston Tirrel. Blewbury. Upton. Cholsey. Uffington. Challow. Steventon. Didcot. Wootton. Letcombe, &c.

3. **Pang.** Beedon. East Ilsley, *W. M. Rogers*. Sulham, *Tufnail*. Oare. Bradfield. Moulsoford. Streatley. Pangbourn. Hampstead Norris, &c.
4. **Kennet.** Greenham, *Weaver*. Wickham, *Mrs. Batson*. Mortimer, *Tufnail*. Newbury, *Russell's Cat*. West Ilsley. Catmore. Lambourn. Theale. Near Reading, &c.
5. **Loddon.** About Park Place, *Stanton*. Wokingham. Twyford. Sonning. Maidenhead. Bourn End. Cookham. Wargrave. Hurley. Bisham. Waltham. Bray. Windsor, &c.

Var. **MINOR** (*T. minus*, Miller, Gard. Dict. ed. 8 (1768)), is the common plant of Berkshire; it is the form alluded to by Baxter in which the involucre is much longer than the florets. The var. **GENUINUS**, Syme, E. B. t. 798, in which the florets are about the same length as the involucre, was found on the railway embankment between Wellington College and Blackwater by *J. W. Eve*.

The var. **TORTILIS**, Meyer, Chlor. Hann. 434, I have found at Reading and near South Hinksey, in both instances on the railway banks; is it more than a form caused by growing in dry sunny places?

T. pratense occurs in all the bordering counties.

****T. PORRIFOLIUM**, Linn. Sp. Pl. 789 (1753). *Purple Goat's-beard* or *Salsify*.

T. purpureum, Ger. Em. 735.

Comp. Cyb. Br. 524. Syme, E. B. v. 140, t. 801. Nyman, 463.

Alien. A South-European species, which has escaped from cultivation. B. May.

Found on the side of the railway near Blackwater by the *Rev. C. W. Penny* in 1874. The plant is the var. *parviflorus*, Syme, l. c.

It is also recorded as an introduced plant for Surrey and Hants.

CAMPANULACEAE, Juss. Gen. 163 (1789).

JASIONE, Linn. Gen. n. 896.

J. montana, Linn. Sp. Pl. 928 (1753). *Sheep's Bit*, *Hairy Sheep's Scabious*. Top. Bot. 267. Syme, E. B. vi. 4, t. 863. Nyman, 486. Fl. Oxf. 189. Native. Glareal. Dry sandy fields, hedge-banks, and heaths. Very local. A. or B. June-October.

First record. *Iasione montana*, Dr. Noehden, *Mavor's Agr. Berks*, 1809.

2. **Ock.** Blewbury and Ilsley Downs, *Lousley* in *Russell's Cat*. [Possibly an error for *Scabiosa Columbaria*.] Tubney, *Walker*. It still occurs sparingly on Boar's Hill.

3. **Pang.** Long Lane near Hermitage Common, *Bunny* in *Russell's Cat*. Streatley Downs, *Stanton* [*? S. Columbaria*]. Near Fence Wood, on the Frilsham side, in a lane.

4. **Kennet.** Mortimer, hedge-bank close to the Common, *Tufnail*. Abundant in a rough sandy field near Padworth.

5. **Loddon.** In the list of Marlow plants, but without precise

locality, *Mill in Phyt.* i. 989. Wellington College, in the railway cutting, *Penny*. Bearwood, *Craucley*. Arborfield, *Tayler*. Ambarrow. Plentiful on the railway-side near Sandhurst.

Jasione is recorded for all the bordering counties, but not for East Gloucestershire.

CERVICINA, Delile, Fl. Egypte, 150 (1813).

Wahlenbergia, Schrad. Cat. Hort. Gotting. (1814).

C. hederacea.

Ivy-leaved Bellflower.

Campanula hederacea, Linn. Sp. Pl. 169 (1753). *Wahlenbergia hederacea*, Reichb. Ic. Pl. Crit. v. 47 (1827).

Top. Bot. 266. Syme, vi. 18, t. 875. Nyman, 485. Fl. Oxf. 189.

Native. Uligin. Shady boggy places. Extremely local. P. June-August.

First record. *Campanula Cymbalariae foliis*, Gerard, 452. Bagley Wood, *Merrett's Pinax*, 19, 1666.

2. **Ock.** In Bagley Wood near Oxford, *Merrett*, l. c. Wootton Heath, *Boswell*. It still occurs in Bagley Wood on each side of the Abingdon Road.

The occurrence of this plant in Bagley Wood is also mentioned in a letter of T. Lawson to Ray, dated April 9, 1688. See *Ray, Philosophical Letters*, 214 (1718).

Cervicina hederacea, one of our most local and elegant species, is recorded for Surrey, Hants, Wilts, and Gloucestershire.

[**PHYTEUMA ORBICULARE**, Linn. Sp. Pl. 170 (1753). Syme, E. B. vi. 6, t. 864.

Is recorded for Surrey, Hants, and Wilts, and may even yet be found on our chalk downs.]

CAMPANULA, Linn. Gen. n. 201 (Tournefort, Inst. t. 37).

C. glomerata, Linn. Sp. Pl. 166 (1753). *Clustered Bellflower*, *Lesser Throatwort*.

Trachelium minus, Park. 644.

Top. Bot. 265. Syme, E. B. vi. 8, t. 866. Nyman, 477. Fl. Oxf. 186.

Native. Pascual. Chalk downs, calcareous pastures, dry banks, &c., evincing a decided preference for limestone and chalk. Sometimes occurring in meadows where there is a gravelly subsoil composed to a considerable extent of calcareous fragments. Locally common. P. May-October.

First record. Sonning, *Mr. S. Rudge in Herb. Brit. Mus.* 1800. *C. glomerata*, Mr. Bicheno and Dr. Noehden, *Mavor's Agr. Berks*, 1809.

1. **Isis.** Carswell, *Miss M. Niven*. Ashbury. Idstone.

2. **Ock.** Common on Blewbury Downs and Lid's Bank and most of the dry pastures on a chalky soil, *Lousley in Russell's Cat.* Sparsholt enclosure, *Bellamy*. Plentiful on White Horse, *Miss F. M. Parker*.

On all the downs bordering on the Vale of the White Horse, *Bitcheno*. Wantage, *Whitcell*. Railway bank, Denchworth, *Wait*. Blewburton Camp. Pusey. Letcombe. Wittenham. Lowbury.

3. **Pang.** Streatley, *Pamplin*. East Ilsley. Compton. Moulsoford. Lowbury. Pangbourn. Sulham. Basildon, &c. Plentiful on the Chalk.
4. **Kennet.** Beedon. Catmore. Ilsley Downs, locally common, *W. M. Rogers*. Wickham, *Mrs. Batson*. Lambourn Downs. Farnborough. Woolley. West Ilsley.
5. **Loddon.** Meadows by the river between Marlow and Bisham Wood, very abundant. Also very fine in the wood to the right of the Maidenhead road, on the first ascent, *Mill*. Windsor, *Bolton King*. Near Wargrave, *Stanton*. Wargrave, *Melville*. Hurley, &c.

The var. *nana*, C. Bailey, is only a state caused by growing in very dry soil, exposed to the full force of the wind. A specimen brought to a garden developed in a single season into a large plant with several flowers. In damp meadows and in ditches on wood-borders a large form occurs, which is probably the *C. speciosa*, Hornem. Hort. Hafn. ii. 957. A white-flowered form has been noticed near Hendred.

Campanula glomerata is found in all the bordering counties.

C. Trachelium, Linn. Sp. Pl. 166 (1753). *Nettle-leaved Bell-flower*, *Canterbury Bells*.

Trachelium vulgare, Clusius. *T. majus*, Ger. Em. 448.

Top. Bot. 265. Syme, E. B. vi. 9, t. 867. Nyman, 478. Fl. Oxf. 187. Native. Sylvestral. Woods, thickets, hedges. Local and rather rare. P. July–August.

First record. ‘*Canterbury Bells*, No. 1 & 2, these grow in Merley wood,’ MS. in *Lyte’s Herball*, 1660. *C. trachelium*, Dr. Noehden, *Mavor’s Agr. Berks*, 1809.

1. **Isis.** Merley Wood, MS. in *Lyte*. Wytham. Appleton.
2. **Ock.** Tubney, *Walker*. Radley Wood. Bagley.
3. **Pang.** In Beech Wood and Park Coppice, Hampstead Norris. In a hedgerow near Unwell Farm and many other places, but not very common, *Lousley* in *Russell’s Cat*. 1839. Sandy Lane. Langley Wood, *W. M. Rogers*. Sulham, *Tufnail*. Ashampstead. Ashridge Wood. Unwell Wood. Tilehurst. Pangbourn. Tidmarsh.
4. **Kennet.** Beedon Wood. Catmore, *W. M. Rogers*. Weston, *Osmond*. Riever Wood. Inkpen. Mortimer. Padworth.
5. **Loddon.** Frequent in woods about Marlow, *Mill*. About Park Place, *Stanton*. Arborfield, *Taylor*. Wargrave. Ashley Hill. Cookham.

Our plant, which has the calyx hispid, is the *C. urticifolia*, Schmidt, Pl. Boem. ii. 73, and the var. *DASYCARPA* of Koch, Syn. Fl. Germ. 470 (1837). At Wytham *f. pedunculata* occurs, in which the flowers are stalked.

Obs. Our garden forms of Canterbury Bells probably had their origin in this species.

O. Trachelium occurs in all the bordering counties.

[*C. LATIFOLIA*, Linn. Sp. Pl. 165 (1753). *Throat Wort*, *Giant Bell-flower*. Syme, E. B. vi. 10, t. 868. Is recorded for Surrey, Wilts, and Gloucestershire.]

**C. rapunculoides*, Linn. Sp. Pl. 165 (1753).

Top. Bot. 264. Syme, E. B. vi. 11, t. 869. Nyman, 478. Fl. Oxf. 187. Denizen. Dry woods, banks, and hedges. Very local. P. July–August. First recorded from near Wallingford in *Mr. Baxter's MSS.* 1831.

2. Ock. In a wood near Wallingford, Berks, Aug. 5, 1831, *Mr. E. B. Hewlett*, who brought a specimen to the Oxford Garden, *Baxter MSS.* Sparingly on a dry hedge-bank on Boar's Hill, where it very rarely flowers. My friend, the *Rev. H. J. Riddelsdell*, pointed out to me the young leaves of this plant in 1892, but it was not till the season of 1895 that I succeeded in obtaining a plant in flower.

5. Loddon. One plant near Wellington College, Penny, 1874. Naturalized at Hurst, *Melvil*. On a bank near Blackwater, in a wild-looking locality. On the slopes of Windsor Castle quite naturalized. Also in the private portion of Windsor Park near Frogmore.

In the Wellington College list for 1894 it is said to occur everywhere about the College, but *C. rotundifolia* is evidently meant.

C. rapunculoides is recorded for Oxford, Surrey, Hants, and Gloucestershire.

C. rotundifolia, Linn. Sp. Pl. 163 (1753), and of Ger. Em. 452. *Harebell*, *Round-leaved Bell-flower*.

Top. Bot. 263. Syme, E. B. vi. 13, t. 870. Nyman, 479. Fl. Oxf. 188. Native. Glareal. Heaths, commons, dry sandy fields, &c. Common and widely distributed. P. June–September.

First recorded as '*Canterbury Bells*, No. 1 & 2, these grow in Merley wood,' *MS. in Lyte's Herball*, 1660. *C. rotundifolia*, Dr. Noehden, *Mavor's Agr. Berks*, 1809. With *Uredo Campanulae*, Pers. about Oxford, *Baxt. Phaen. Bot.* No. 61 (1834). The white-flowered form was recorded from North Heath in *Russell's Cat.* 1839. I have seen it near Radley.

C. rotundifolia is too well known and too widely distributed to require a list of localities. It occurs in all the bordering counties.

Obs. Our Berkshire plants appear to rarely exhibit the round radical leaves so frequently seen in the North British specimens.

****C. PATULA**, Linn. Sp. Pl. 163 (1753).

Top. Bot. 263. Syme, E. B. vi. 15, t. 873. Fl. Oxf. 188. Nyman, 482.

Casual. Fields recently laid down for grass. A. B. July.

First found by Mr. F. Tufnail in 1896.

4. Kennet. Mortimer, on two occasions in 1896, *Tufnail*. Perhaps introduced with grass seeds.

It is recorded for Bucks, Surrey, Hants, and Wilts. Two plants were found in a meadow near the Coppice, Shiplake, Oxfordshire, by Sir W. G. Phillimore.

***C. Rapunculus**, Linn. Sp. Pl. 164 (1753).

Rampions.

Rapunculus esculentus, C. B. Pin. 92.

Top. Bot. 264. Syme, E. B. vi. 14, t. 872. Nyman, 482. Fl. Oxf. 188.

Colonist. Pascual. Grassy fields. Rare and local. B. June-July.

First record. At Besilsleigh, *Dr. Lightfoot's MSS. about 1780*. Recorded by Mr. Bicheno in *Mavor's Agr. Berks*, 1809.

1. Isis. At Besilsleigh, *Lightfoot*. From a field near the Old Mansion House, Mr. E. Jenner, 1832, *Herb. Oxf.* [I have been unable to find it there; the field near the road has plenty of *Tulipa*, *Galanthus*, and other relics of the old garden.]
2. Ock. Bagley Wood, *Walk. Fl.*
4. Kennet. Pill Hill near Newbury, *Bicheno*. [Now extinct.]
5. Loddon. Near Wokingham, *Trimen*. In a grass field in 1895, near Chasey, which is between Ascot and Binfield.

C. Rapunculus is recorded for all the bordering counties except Gloucestershire, but it is a rare and sporadic plant in Britain.

LEGOUSIA, Durande, Fl. Bourg. i. 37, ii. 26 (1782).

Specularia, A. DC. Mon. Campan. 394 (1830). *Apenula*, Neck. Elem.

234 (1790).

Legousia hybrida, Delarb. Fl. Auv. ed. 2, 47 (1800). *Venus' Looking Glass*.

Legousia parviflora, S. F. Gray, Nat. Arr. ii. 410 (1821). *Legousia*

hybrida, Gerard, in Rev. Bot. (1890) 168. *Campanula hybrida*, Linn.

Sp. Pl. 168 (1753). *Specularia hybrida*, DC. Prod. vii. 490 (1839).

Top. Bot. 266. Syme, E. B. vi. 17, t. 874. Nyman, 483. Fl. Oxf. 188.

Native. Agrestal. Cornfields, more frequent on calcareous soil. Not uncommon. A. June-September.

First record. *Campanula hybrida*, Mr. Bicheno, *Mavor's Agr. Berks*, 1809.

1. Isis. Cumnor. Appleton. Buckland. Near Buscot. Coleshill.
2. Ock. Near Ferry Hinksey, *Morrison*. Marcham, *Walker*. South Hinksey, *Lawson sp. in Herb. Oxf.* Boar's Hill. Shippon. Frilford. Cothill. Abingdon. Ardington. North Moreton. Blewbury. Upton. Wallingford. Compton. Beauchamp
3. Pang. Streatley, *Pamplin*. Sulham, *Tufnail*. East Ilsley. Moultsford. Bucklebury. Lowbury. Frilsham. Bradfield.

4. Kennet. Cornfields near Newbury, *Bicheno in Mavor's Agr. Berks*, 1809. North Heath, *Russell's Cat.* 1839. Beedon, *W. M. Rogers*. Wickham, *Mrs. Batson*. West Ilsley. Catmore. Padworth. Donnington. Inkpen.
5. Loddon. On a wall at Hurley, *Mill*. A troublesome weed at Remenham, *Stanton*. Windsor, *Everett*. Wargrave, *Melville*. Twyford. Waltham. Arborfield.

Legousia hybrida occurs in all the bordering counties.

[**L. DURANDI**, Delarb. l. c. = *Campanula Speculum*, Linn. Sp. Pl. 168 (1753), has been sent me as a casual plant from Surrey by the Rev. V. G. Crawley.]

VACCINIACEAE, Lindl. Veg. Kingd. 757 (1847).

Vaccinaceae, Lindl. Nat. Syst. 221 (1836).

VACCINIUM, Linn. Gen. n. 434.

V. Myrtilus, Linn. Sp. Pl. 349 (1753). Bilberry, Huckleberry, Whorts, Bleaberry.

Myrtilus, Trag. *Vaccinia nigra*, Gerard, 1229.

Top. Bot. 270. Syme, E. B. vi. 24, t. 879. Nyman, 490. Fl. Oxf. 191.
Native. Ericetal. Woods and heaths in hilly situations. Almost absent from the north of the county, but locally common in the south-west. A small shrub. April-May.
First record. *V. myrtilus*, Newbury Heath, Mr. Bicheno in *Mavor's Agr. Berks*, 1809.

2. Ock. Bagley Wood, *Newton Young in Walk. Fl.* 1833.

3. Pang. Plentiful in Eling Park, Hampstead Norris, Grimsbury Castle, and in several other woods, but not very common, *Lousley in Russell's Cat.* 1839. Fence Wood. Cold Ash Common, *W. M. Rogers*. Hawkridge. Ashampstead. Yattendon. Oare. Hermitage. Bucklebury. Frilsham.

4. Kennet. Newbury Heath, *Bicheno*, 1809. Mortimer. Silchester. Greenham. Snelsmore. Wickham Heath.

5. Loddon. Common in all our woods, *Penny*. Sandhurst. Broadmoor. Long Moor. Caesar's Camp. Easthampstead. Sunningdale. Windsor Park. Whortlebury Hill.

V. Myrtilus, which is very rare in Oxfordshire, is recorded for all the bordering counties, but not for East Gloucestershire.

[**OXYCOCUS** (Adans. Fam. ii. 164) **QUADRIPETALA**, Gilib. Fl. Lituan. i. p. 5 (1781). *O. palustris*, Pers. Syn. i. 419 (1805) *O. Oxycoccus*. *Vaccinium Oxycoccus*, Linn. Sp. Pl. p. 351 (1753). *Cranberry*. Syme, E. B. vi. 20, t. 876. Is recorded for Surrey and Hants.]

ERICACEAE, DC. Fl. Fr. iii. 675 (1805).

[**ANDROMEDA POLIFOLIA**, Linn. Sp. Pl. 393 (1753). Syme, E. B. vi. 30, t. 883. Is recorded on the authority of Mr. J. Rayer in *Bot. Guide* (1805) for Iwer Heath in Buckinghamshire.]

CALLUNA, Salisb. in Linn. Soc. Trans. vi. (1802) 317.

C. Erica, DC. Fl. Fr. iii. 680 (1805). *Ling, Heather, Common Heath.*

C. vulgaris, Hull, Brit. Fl. ed. 2, 114 (1808). *Erica vulgaris*, Linn. Sp. Pl. 352 (1753).

Top. Bot. 268. Syme, E. B. vi. 43, t. 894. Nyman, 489. Fl. Oxf. 190. Native. Ericetal. Heaths, commons, and dry sandy places. Locally common, especially in the south-west of the county. Shrub. May-September.

First recorded as *Erica Myricae folio*. Isti per omnia similem plantam, sed paulo elatiorem, foliis tomentosis et incanis, paulo etiam dilutiores flore inveniebam [in] incultis, supra Windesorum Regum Angliae Regiam, locis, *Clusius, Rariorum Pl. Hist.* 41, 1601.

2. **Ock**. Bagley, *Boswell*. Between Wantage and Didcot, *Bellamy*. Tubney, *Walker*. Boar's Hill. Frilford, *Fl. Oxf.* Upton Downs. Pickett's Heath. Near Besilsleigh.

3. **Pang**. Near Unwell Wood. Moulsoford Downs. Cold Ash Common. Oare. Hermitage. Fence Wood. Bucklebury. HawkrIDGE. Curridge.

4. **Kennet**. Round Newbury and the Forest Common, *Mavor's Agr. Berks*, 1809. Greenham, *Rupert Jones*. Mortimer, *Tufnail*. Snelsmore Common. Wickham Heath. West Ilsley. Letcombe. Farnborough. Common on the south side of the Kennet.

5. **Loddon**. Windsor Park, *Clusius*. Sunninghill, *Sir J. Banks*, 1773. Bulmarsh Heath, *Rudge in Herb. Brit. Mus.* Knowl Hill. Warren Row, *Stanton*. Stubbing's Heath. Pinkney's Green. Wellington College. It is too frequent in this district to need a detailed enumeration of localities.

Var. **INCANA**, *Erica vulgaris hirsuta*, Ger. Ray, Syn. ed. 2, 345 (1696). *E. ciliaris*, Huds. Fl. Angl. 144 (1762), not of Linn. Sp. Pl.

This hoary-leaved variety occurs with the type in many of its localities, as on Bagshot, *Doddy, Ray*, ed. 2, 345 (1696), Snelsmore, Greenham, Coleman's Moor, Mortimer, Sandhurst, Finchampstead, Long Moor, Windsor Park, Pickett's Heath, &c.

The *f. alba* is rare; I have seen it near Sandhurst.

Calluna is found in all the bordering counties.

ERICA, Linn. Gen. n. 435 (Tournefort, Inst. t. 373 a).

E. Tetralix, Linn. Sp. Pl. 353 (1753). *Cross-leaved Heath.*

Top. Bot. 268. Syme, E. B. vi. 37, t. 889. Nyman, 488. Fl. Oxf. 190. Native. Ericetal. Damp heaths. Almost absent from the north of the county. Common in the south-west. Shrub. May-Sept.

First record. *Erica palustris folio hirsuto quaterno cum flore niveo*. Bagshot Heath, Mr. Doody in *Ray, Syn.* ed. 2, 345 (1696). A white-

flowered specimen from Bulmarsh collected by *Mr. S. Rudge* about 1800, and a specimen from Sunninghill gathered by *Sir J. Banks* in 1773, are in *Herb. Brit. Mus.*

3. **Pang.** Cold Ash. Fence Woods. Oare. Bucklebury. Tilehurst.

4. **Kennet.** Greenham Common, *Rupert Jones*. Snelsmore Common. Large tracts in the southern part of this district are covered with it.

5. **Loddon.** Bagshot, *Doody*. Sunninghill, *Sir J. Banks*. Bulmarsh, *Rudge*. Wokingham, *Ed. Forster* in *Herb. Brit. Mus.* Ambarrow. Windsor Park, *Bolton King*. Abundant near Sandhurst, and covers considerable areas of country in this district.

A hairy plant (var. *incana*), analogous to the hairy form of *Calluna*, is found growing with the ordinary form of this species at Sandhurst and elsewhere. White-flowered plants are not uncommon; they have been recorded by *Doody*, *Rudge*, and other botanists, and are rather frequent near Broadmoor and Sandhurst.

E. Tetralix is recorded for all the bordering counties, but is not found in E. Gloucestershire.

E. cinerea, Linn. Sp. Pl. 352 (1753). *Fine-leaved Heath.*

Top. Bot. 268. Syme, E. B. vi. 40, t. 891. Nyman, 488. Fl. Oxf. 189.

Native. Ericetal. Heathy places. Local and rare north of Moulsoford and Ilsley. Common to the south and west of Reading. Small shrub. May–September.

First record. *Erica Corisfolia sexta*. In Anglia supra Windesoram, mense Septembri florentem, *Clusius*, *Rariorum Pl. Hist.* 43, 1601. *E. tenuifolia* [Ger. Em. 1380] *flore albo*, near Redding, [*How's*] *Phyt. Brit.* 38, 1650.

2. **Ock.** Boar's Hill.

3. **Pang.** Near Beedon, *W. M. Rogers*. Cold Ash Common. Bucklebury. Oare. Hermitage. Fence Wood.

4. **Kennet.** Greenham Common, *Rupert Jones*. Mortimer, *Tufnail*. Snelsmore. Inkpen. Burghfield. Aldermaston. Upton. Hampstead Marshall.

5. **Loddon.** Early, *Tufnail*. Near Reading, *Phyt. Brit.* Windsor Park, *Clusius*. Knowl Hill. Warren Row, *Stanton*. Windsor Park, and very common over the heathy portion of the district.

The *f. alba*, recorded in *How's Phyt. Brit.*, probably on the authority of J. Watlington of Reading, is occasionally found, as near Sandhurst near Wellington College, and on Bagshot Heath.

E. cinerea is recorded for all the bordering counties, but not for E. Gloucestershire.

****E. vagans**, Linn. Mant. ii. 230 (1771). Syme, E. B. vi. 41, t. 892. Nyman, 488. Fl. Oxf. 190.

Alien. Recorded as 'Possibly not native, but in some plenty amid *Calluna*, Bulmershe Park, Earley, in which park are many planted Conifers,' Dr. F. A. Lees in *Rep. of Bot. Record Club*, 1883. Mr. Tufnail tells me it was planted there by Mr. Wheble.

It has also been planted on Binfield Heath, Oxfordshire, and in neither place has it the least claim to be considered a native of the county.

PYROLA, Linn. Gen. n. 490 (Tournefort, Inst. t. 134).

P. minor, Linn. Sp. Pl. 396 (1753). *Lesser Winter Green*.

P. folio minore et duriore, C. B. Pin. 191. *P. rosea*, Sm. E. B. t. 2543.

Top. Bot. 272. Syme, E. B. vi. 49, t. 898. Nyman, 492. Fl. Oxf. 191.

Native. Sylvestral. Woods and bushy places. Very rare. P. July-August.

First record. *P. minor*, Dr. Noehden, *Mavor's Agr. Berks*, 1809, but no locality is given.

5. Loddon. First precise record. 'Without flowers in a coppice of oak and birch scrub, a short half-mile across the bog, eastward from Ascot Station, Berks,' Mr. H. C. Watson in *Rep. of Bot. Exch. Club*, 17, 1871. I found it growing rather plentifully, and in flower, in a piece of ground recently cleared from brushwood and now planted with trees, below Finchampstead Ridges, near the Spout Pond.

P. minor, which is rather plentiful in the woods on the Oxfordshire Chilterns, appears to be absent from the similar woods of the Berkshire hills. It is recorded for all the bordering counties except Wiltshire.

[**P. media**, Swartz in Vet. Acad. Handl. Stock. (1804) 257. Syme, E. B. vi. 48, t. 897.

Is given in Mr. Pamplin's list of plants observed about Streatley, which appeared in the *Phytologist*, v. (1854) 154; but he states that the plant, which he thought was *P. media*, was seen on the Oxfordshire side of the river.

Hitherto there has been no satisfactory record of *P. media* for Oxfordshire or the other bordering counties, and Mr. Pamplin's plant was *P. minor*.]

MONOTROPACEAE, Lindl. Nat. Syst. ed. 2, 219 (1836).

HYPOPITYS, Adans. Fam. ii. 443 (1763), (Dillen. Gen. 134).

H. Monotropa, Crantz, Inst. ii. 467 (1766). *Yellow Bird's Nest*.

H. Hypopithys, Small, in Mem. Torrey Club, iv. (1894) 137. *Monotropa hypopithys*, Linn. Sp. Pl. 387 (1753). *Hypopithys multiflora*, Scop. Fl. Carn. ed. 2, 285 (1772).

Top. Bot. 273. Syme, E. B. vi. 53, t. 901. Nyman, 493. Fl. Oxf. 192.

Native. Sylvestral. In woods of beech, very local and rather rare.

P. June-September.

First record. *Monotropa hypopitys*, Berkhamensi frequens, Huds. Fl. Angl. ed. 2, 175, 1778.

1. **Isis.** Buckland, Prof. Williams' MSS. 1820. Wytham.

2. **Ock.** Wood behind the Blowing Stone, near Kingston, Mr. Witham, about 1770. Near Cholsey, Baber.

3. **Pang.** Wood behind Basildon House, Mr. E. Forster, Jun., in Bot. Guide and in Herb. Brit. Mus. Streatley, Pamplin. Unwell Wood.

5. **Loddon.** In the woods at Park Place, Noehden, in Mavor's Agr. Berks. Near the path, upper side of Bisham Wood, coming up even in the path, Hurst MS. Beech Wood, between Henley and Great Marlow, Woods. See New Bot. Guide. Quarry Wood.

Var. **HIRSUTA** (Roth, Tent. Fl. Germ. 180) = *Monotropa Hypopitys*, Walter, Fl. Carol. 136. Near Reading, Leighton, in Herb. Brit. Mus.

Var. **GLABRA** (Roth, l. c.), *Monotropa hypophega*, Wallr. Sched. Crit. 191. *Hypopitys glabra*, DC., Prod. vii. 780. Cholsey, Berks, Baber, in Bot. Soc. Lond. See Phyt. (1842) 236.

H. Monotropa is recorded for all the bordering counties.

PRIMULACEAE, Vent. Tabl. ii. 285 (1799).

HOTTONIA, Linn. Gen. n. 186 (Boerhaave).

H. palustris, Linn. Sp. Pl. 145 (1753). Water Violet.

Viola palustris, Ger. Em. 826, not of Plot or Linnaeus.

Top. Bot. 335. Syme, E. B. vii. 130, t. 1128. Nyman, 602. Fl. Oxf. 245. Native. Lacustral. Ditches and slow streams. Local. P. April-August.

First record. *Millefolium aquat. floridum*, Water Gilly-flour, Park. 1256. In all the Ditches about Oxford, Merrett's Pinax, 1666.

1. **Isis.** Near Bablock Hythe Ferry, Dyer. Buckland, Boswell. Carswell, Miss M. Niven.

2. **Ock.** Ditches near Oxford, Merrett. South Hinksey. Kennington, Fl. Oxf. Radley. Abingdon.

3. **Pang.** Caversham meadows, Tufnail. Near Moulsoford. In a shallow pond near Tilehurst.

4. **Kennet.** Hemp Hole near Newbury, Bicheno, in Mavor's Agr. Berks, 1809. Calcot, Tufnail. Theale. Between Padworth and Reading.

5. **Loddon.** North Town near Maidenhead, Hurst MS. in New Bot. Guide, 1835. New Lock, Mill. Ponds at foot of Cookham Down, Britt. Contr. Near Sandford Mill, Salmon. Near Sandhurst, Penny. Plentiful in Sonning meadows, Tufnail. Coleman's Moor. Blackwater. Twyford. Hurst. Stanlake. Near Loddon Bridge.

Hottonia, misspelt *Hottomia* in Linn. Gen., is recorded for all the bordering counties.

PRIMULA, Linn. Gen. n. 180.

P. acaulis, Grufberg in Linn. Amoen. Acad. iv. 97 (1759), nomen solum, and Hill, Syst. Veg. viii. 25 (1765). *Primrose*.

P. vulgaris, Huds. Fl. Angl. 70 (1762). *P. veris*, var. *acaulis*, Linn. Sp. Pl. 205 (1753).

Top. Bot. 334. Syme, E. B. vii. 131, t. 1129. Nyman, 603. Fl. Oxf. 245. Native. Sylvestral. Woods, thickets, hedge-banks, &c. Common and generally distributed, although not so abundant as in Oxfordshire. P. February–September.

First record. (For the hybrid) *P. elatior*, Oxlip, Mr. Bicheno, *Mavor's Agr. Berks*, 1809.

P. acaulis hybridizes freely with the Cowslip.

P. ACAULIS × **VERIS**. *P. variabilis*, Goupil, in Mém. Soc. Linn. Paris, iii. (1825) 294, is not the true *P. elatior* of Jacquin, and has been found in all the districts, but of course much less frequently than its parents. The subjoined are a few of its localities.

1. **Isis**. Copse near Botley, *Dyer*, in *Journ. Bot.* (1871) 147. Wytham. Buscot. Appleton. Cumnor.
2. **Ock**. Shellingford, *Richards*. Marcham, *Walker*. Cumnor Hurst, *Dyer*. Denchworth, *Wait*. Uffington. Tubney. Besilsleigh. Pusey. Bagley. Radley.
3. **Pang**. Beech Wood and Park Coppice. Hampstead Norris, *J. Lousley* in *Russell's Cat*. Sulham, *Tufnail*. Ashampstead. Compton.
4. **Kennet**. Newbury, *Bicheno*. Inkpen. Irish Wood, Kintbury.
5. **Loddon**. Park Place, *Stanton*. Hurst Grove in meadows, *Melvil*. Arborfield, *Taylor*. Windsor Forest.

Var. **CAULESCENS**, Koch, Syn. Fl. Germ. 587 (1837), Wytham Wood, Ashridge Wood, &c., is a form in which an umbel of flowers is borne on a short stalk, but the flowers are the same size as in the ordinary plant.

Describing the Boar's Hill range, Matthew Arnold in *Thyrsis* writes—

‘Down each green bank hath gone the ploughboy's team,

And only in the hidden brookside gleam

Primroses, orphans of the flowery prime.’

Primula acaulis occurs in all the bordering counties.

P. veris, Linn. Sp. Pl. 142 (1753). *Cowslip*.

P. veris major, Ger. Em. 780. *P. officinalis*, Jacq. Misc. i. 159, and Index Kewensis.

Top. Bot. 334. Syme, E. B. vii. 133, t. 1130. Nyman, 603. Fl. Oxf. 246. Native. Pascual. Pastures, hedge-banks, borders of woods, chalk downs, railway banks, &c. Locally abundant and widely distributed, evincing a partiality for calcareous pastures but not restricted to them. P. March–May.

First recorded in *Russell's Cat.* of 1839.

One of our best-known plants and a great adornment of the drier pastures and chalk downs, forming a charming contrast to *Orchis morio*, which often accompanies it; it is too frequent to need a list of localities being given.

‘Her foot the Cumner cowslips never stirred;

But many a dingle on the loved hill-side, . . .

Where thick the cowslips grew.’ *Matthew Arnold's Thyrsis.*

P. veris occurs plentifully in all the bordering counties.

[***CYCLAMEN HEDERAEFOLIUM*, Ait. Hort. Kew. ed. 1, i. 196 (1789). Syme, E. B. vii. 140, t. 1136. Nyman, 601.

Alien. In Radley Park, but only as planted specimens.

It occurs in a naturalized condition in Hampshire.]

LYSIMACHIA, Linn. Gen. n. 188 (Tournefort, Inst. t. 59).

L. vulgaris, Linn. Sp. Pl. 146 (1753). *Yellow Loosestrife.*

Top. Bot. 336. Syme, E. B. vii. 144, t. 1141. Nyman, 599. Fl. Oxf. 242. Native. Paludal. River-banks, marshy ditches, &c. Local, but not an uncommon plant. P. June–September.

First record. *L. lutea* [Ger. Em. 474]. It was found by Mr. Watlington by River Kennet within three miles of Redding, *E. Ashmole's MS.* about 1651. *Yellow Lysimachion* grows plentifully in our Oxford ditches, *MS. in Lyte's Herball*, 1660. *L. vulgaris*, Dr. Noehden, *Mavor's Agr. Berks*, 1809.

1. **Isis.** Wytham, *Boswell*. Near Buscot. Radcot. Near Duxford. Newbridge. Appleton. Near Fynsham. Merley Wood.
2. **Ock.** Abingdon, *Whitwell*. On the banks of the Thames about Wallingford. Blewbury, in one spot, *Lousley in Russell's Cat.* Marcham, *Walker*. On the Ock near the Noah's Ark. Ferry Hinksey. Kennington. Near Radley. Sutton Courtney. Appleford. Near Wittenham, &c.
3. **Pang.** Caversham meadows, *Tufnail*. Moulsoford. Streatley. Pangbourn. Tilehurst. Reading.
4. **Kennet.** By the Kennet three miles from Reading, *J. Watlington*. Burghfield meadows, *Tufnail*. By the Emborne Stream near Aldern Bridge. Aldermaston Decoy. Theale. Southcote.
5. **Loddon.** Sunninghill, *Sir Joseph Banks*, 1773, in *Herb. Brit. Mus.* Banks of the Thames near Windsor, *Winch, MS.* 1802. Shiplake, *Tufnail*. By the river near Marlow abundantly, *Mill*. Abundant in a piece of pasture land between Warren Row and Knowl Hill, *Stanton*. Wargrave, *Melville*. Arborfield, *Taylor*. Near Wellington College by the Blackwater. Ambarrow. East-hampstead. Jouldern's Ford. Long Moor, very fine specimens.

Coleman's Moor. Twyford. Hurley. Whistley Green. Ruscombe. Aston Ferry. Cookham. Bray. Old Windsor. Frogmore. Virginia Water, &c.

L. vulgaris occurs in all the bordering counties.

L. Nummularia, Linn. Sp. Pl. 148 (1753). *Money-wort*, *Creeping Jenny*.

Nummularia, Gerard, 505.

Top. Bot. 337. Syme, E. B. vii. 148, t. 1144. Nyman, 599. Fl. Oxf. 243.

Native. Paludal. Wet meadows, stream-sides, damp woods, &c.

Common in low situations throughout the county. In the uplands rare or absent. P. June-August.

First record. *Moneywort* everywhare about Oxford in great abundance,

MS. in Lyte's Herball, 1660. Sunninghill, *Sir J. Banks, in Herb. Brit.*

Mus. 1774. *L. nummularia*, Dr. Noehden, *Mavor's Agr. Berks*, 1809.

Baxter records it from Bagley, *Mr. Baxter's MSS.* 1823.

L. Nummularia is too frequent in all our valleys to need special localities being given, and is found in all the bordering counties.

In the *Student's Flora* Sir J. D. Hooker casts a doubt on its being a native plant of Britain because the seeds are not ripened. It appears to me that this is a case (similar to *Cardamine pratensis* and *Ranunculus Ficaria*, neither of which often ripen seed) in which the plant finds there is little need of producing seed, since it can multiply very rapidly nearly all the year round by means of its creeping stems, as the *Cardamine* can do by its leaves and the *Ranunculus* by its tubers. I have no doubt of *L. Nummularia* being a native of the three counties of the Upper Thames province.

L. nemorum, Linn. Sp. Pl. 148 (1753). *Wood Pimpernel*, *Wood Money-wort*, *Yellow Pimpernel*.

Anagallis lutea nemorum, C. B. Pin. 252.

Top. Bot. 338. Syme, E. B. vii. 149, t. 1145. Nyman, 599. Fl. Oxf. 243.

Native. Sylvestral. Woods and thickets. Local and not very common.

P. April-October.

First record. *Anagallis lutea nemorum*. In Tylehurst near Redding between the Church and Sir Peter Van Lore's house, *E. Ashmole's MS.* 1651. Still there in 1896.

1. *Isis*. Wytham Wood, *Baxt. Phaen. Bot.* 310. Marcham, *Walker. Tubney*.

2. *Ook*. Bagley Wood, *L. nemorum*, *Mavor's Agr. Berks*, 1809.

3. *Pang*. Tilehurst, *Ashmole*. Tidmarsh. Sulham, *Tufnail*. Streatley, *Pamplin*. Cold Ash and Fence Wood. Oare Wood. Unwell Wood. Ashampstead. Ashridge Wood. Bucklebury. Frilsham. Yattendon.

4. *Kennet*. Near Newbury, *Russell's Cat.* Greenham Common, *Rupert Jones*. Wickham, *Mrs. Batson*. Mortimer, *Tufnail*. Brimpton Wood. Aldermaston. Hampstead Marshall. Crookham Heath. Tilcomb Green. Wood near Curridge. Burghfield. Silchester. Upton. Templeton.

5. Loddon. Bisham Wood, abundant, *Mill.* Bowsey Hill. Warren Row, *Stanton.* Lane by Ford, *Penny.* Ashley Hill. Finchampstead. Coleman's Moor. Windsor Park. Cookham. Wood near Bear Place.

L. nemorum occurs in all the bordering counties.

ANAGALLIS, Linn. Gen. n. 189 (Tournefort, Inst. t. 59).

- A. arvensis**, Linn. Sp. Pl. 148 (1753). *Scarlet Pimpernel.*

A. phoenicea, Scop. Fl. Carn. ed. 2, i. 139 (1776). *A. mas*, Ger. Em. 617, and of Villars.

Top. Bot. 338. Syme, E. B. vii. 150, t. 1146. Nyman, 601. Fl. Oxf. 244. Native. Agrestal. Cultivated fields. Common and generally distributed in suitable situations. A. May–November.

First record. Sonning, *Mr. S. Rudge, in Herb. Brit. Mus.* 1800.

A. arvensis. A good barometer, as its scarlet petals close before approaching rain, *Mavor's Agr. Berks*, 1809.

Forms with flesh-coloured flowers are sometimes found (var. *carnea*, Schrank), as at Hodecott; and (var. *pallida*) with a white flower and a purple eye on rubbish heaps at Didcot.

A. arvensis is plentiful in all the bordering counties.

- A. femina**, Miller, Gard. Dict. ed. 8 (1768), and of Ger. Em. 617. *Blue Pimpernel.*

A. caerulea, Schreb. Spic. Fl. Lips. 5 (1771), Lam. Fl. Fr. ed. 1, ii. 285 (1778).

Top. Bot. 338. Syme, E. B. vii. 151, t. 1146. Nyman, 601. Fl. Oxf. 244. Colonist. Agrestal. Cultivated fields and waste places. Very rare.

A. July–November.

First record. *Anagallis flore caeruleo*, near Battle [Botley], by Oxford, *Parkinson, Theatrum Botanicum*, 558, 1640.

1. *Isis.* Wytham Park, *Crawley*, 1888.

2. *Ook.* Near Botley, *Parkinson.* *A. caerulea*. In a cornfield SW. of South Hinksey, *Baxter, in Walk. Fl. Wootton Fields, near Abingdon, Herb. Kew. teste Britten.* Marcham, *Walker.* In a quarry at Kingston and in the orchard at Fyfield, *Miss F. M. Parker.* Denchworth, *Wait.* In garden ground near Didcot.

4. *Kennet.* Near Wickham, *Mrs. Batson.* Near Reading

5. *Loddon.* Found in grounds of Hurst Grove, *E. J. ...*

A. femina is common for all the bordering counties. For E. Gloucestershire.

- A. tenella**, Linn. Sp. Pl. ii. 335 (1771). *Blue Pimpernel.* *Lysimachia tenella*, Linn. Sp. Pl. 148 (1753).

Top. Bot. 338. Syme, E. B. vii. 152, t. 1146. Nyman, 601. Fl. Oxf. 244.

Native. Uliginous. Peaty bogs. Local. P. June–August.

First record. Bulmarsh Heath, *Mr. S. Rudge in Herb. Brit. Mus.* 1800.

Recorded by Dr. Noehden and Mr. Bicheno in *Mavor's Agr. Berks*, 1809.

1. **Isis.** Buckland, *Boswell in Fl. Oxf.* Wytham Wood.
2. **Ock.** Bagley Wood, *Baxter in Walk. Fl.* Wootton Heath, *Thurland. Marcham, Walker.* Frilford, *Fl. Oxf.* Cothill Moor.
3. **Pang.** Cold Ash Common. Oare Common.
4. **Kennet.** Bogs on Snelsmore and Wash Common, *Russell's Cat.* Crookham and Newtown Common, *Stubbs in Brit. Contr.* Greenham Common, *Rupert Jones.* Mortimer, *Tufnail.* Wickham, *Mrs. Batson.* Burghfield, *Bird*, 1833. Inkpen.
5. **Loddon.** Windsor Great Park, *Moore in Brit. Contr.* Ascot, *Wilkins.* Heath Pool. Bog below Brickfield, *Penny.* Sandhurst. Long Moor. Bagshot. Sunninghill. Near Virginia Water. Bulmarsh Heath!

A. tenella, which is a very charming plant, is recorded for all the bordering counties.

CENTUNCULUS, Linn. Gen. 135 (Dill. Gen. 5).

C. minimus, Linn. Sp. Pl. 116 (1753). *Chaff-weed.*

Top. Bot. 338. Syme, E. B. vii. 153, t. 1149. Nyman, 601. Fl. Oxf. 245.

Native. Ericetal. Damp heathy ground, especially preferring drives through heathy woods, and bare places on sandy commons. Very local. Restricted to the heaths of the south. A. June–Sept.

First recorded as a British species. *Chamaelinum stellatum*, Park.

Starred Dwarf Flax. Near Redding, [*How's Phyt. Brit.* 1650.

It was almost certainly discovered by Mr. Watlington, an apothecary of Reading, since in Ashmole's copy of the *Phytologia* the locality is given in more precise terms as 'upon ye end of ye hill near Chaucer's Coppis, E. A. and J. W.' Parkinson's *Chamaelinum stellatum* was really *Asterolimon stellatum*, with which our plant was confused by How and Ashmole.

4. **Kennet.** Near Chaucer's Copse, *Ashmole.* Mortimer, *Tufnail.*
5. **Loddon.** Bagshot Heath, *Bicheno.* Warren Row Common, *Stanton.* Sunninghill, *Lightfoot MS.* Sandhurst. Near Wellington College. Swinley. Long Moor. Finchampstead. Near Ascot.

Centunculus minimus is recorded for Bucks, Hants, Surrey, and Oxfordshire.

SAMOLUS, Linn. Gen. n. 205 (Tournefort, Inst. t. 60).

S. Valerandi, Linn. Sp. Pl. 443 (1753). *Round-leaved Water Pimpernel, Brook-weed.* *Anagallis aquatica rotundifolia*, Ger. Em. 620.

Top. Bot. 339. Syme, E. B. vii. 155, t. 1151. Nyman, 600. Fl. Oxf. 243.

Native. Paludal. Ditches and trenches in watery and marshy situations. Very local and rather rare. P. June–August.

First recorded by Mr. W. Delamotte in *Baxter's Phaen. Bot.* n. 11, 1834.

1. Isis. Wytham Wood, on the south side, and in Merley Wood.
 2. Ock. Marcham, *Walker*, 1873. Cothill Moor. Rather plentiful in a trench by the railway between Radley and Abingdon. In a marsh between Cothill and Abingdon.
 5. Loddon. In ditches in the Park, and in the entrenchments at Caesar's Camp, Easthampstead, *Delamotte*.
- S. Valerandi* is recorded for all the bordering counties except Bucks.

OLEACEAE, Lindl. Nat. Syst. ed. 1 (1830).

FRAXINUS, Linn. Gen. n. 1026 (Tournefort, Inst. t. 343).

F. excelsior, Linn. Sp. Pl. 1057 (1753), and of C. B. Pin. 416. *Ash*.

Top. Bot. 275. Syme, E. B. vi. 56, t. 902. Nyman, 495. Fl. Oxf. 193.

Native. Sylvestral. Woods, hedges, thickets, parks, &c. Rather common and generally distributed, except on the heathy ground of the south-west. Tree. April–May.

First record. The prevailing wood of the county of Berks is Hazel occasionally mixed with Ash, *Lyson's Magna Brit.* 1806.

Ash flourishes most in groves and plantations, *Mavor's Agr. Berks*, 1809.

Sphaeria concentrica, Bolt. (and other Fungi), on the . . . Ash about Oxford, *Baxt. Phaen. Bot.* n. 382.

The Ash is too frequent in Berkshire to need a list of localities. That it is a native tree of the county is proved by the frequent use of the name as a prefix for the names of villages, &c.; for instance, Ashampstead, Ashridge, Ashbury. The name is also shown in Cold Ash Common, Wigmores Ash, &c.

'The invincible King Offa built that terrible fortress or castle on the said hill (Wytham), not farre from the place where the great Ashe (which is a land mark) standeth,' *Antiquities of the City of Oxford*, *Anthony Wood*, ed. Rev. A. Clark, 50 (1889). Very beautiful specimens of the Ash-tree are still found in Wytham.

Fraxinus is found in all the bordering counties.

LIGUSTRUM, Linn. Gen. 18 (Tournefort, Inst. t. 367).

L. vulgare, Linn. Sp. Pl. 7 (1753). *Privet*, *Prim.*

L. germanicum, C. B. Pin. 475. *Ligustrum*, Fuchs.

Top. Bot. 274. Syme, E. B. vi. 60, t. 904. Nyman, 494. Fl. Oxf. 193.

Native. Sylvestral. Thickets, woods, hedges, &c. Common on the Chalk, and scattered throughout the county. Shrub. May–August.

First record. *L. vulgare*, Mr. Bicheno, in *Mavor's Agr. Berks*, 1809.

Abundant in the neighbourhood of Oxford, *Baxt. Phaen. Bot.* n. 119.

The *Privet* occurs plentifully in all the districts; it is especially abundant in Tubney and Appleton Woods, and is, I believe, undoubtedly native. The flowers are attractive to flies, and the odour is disagreeable.

Ligustrum is found in all the bordering counties.

***SYRINGA VULGARIS*, Linn. Sp. Pl. 9 (1753). *Lilac*.

Curtis, Bot. Mag. t. 181 (1792). Nyman, 495. Fl. Oxf. 193.

Alien. A native of Persia and Hungary, which has become semi-wild in a few situations, but only as a relic of cultivation.

1. *Isis*. Near Faringdon, *F. T. Richards*.
4. *Kennet*. Near Padworth. Near Calcot Park.
5. *Loddon*. Railway-side near Maidenhead.

APOCYNACEAE, Lind. Nat. Syst. ed. 2, 299 (1836).

VINCA, Linn. Gen. n. 261 (*Pervinca*, Tournefort, Inst. t. 45).

***V. major**, Linn. Sp. Pl. 209 (1753). *Great Periwinkle*.

Clematis daphnoides maior, C. B. Pin. 302.

Comp. Cyb. Br. 537. Syme, E. B. vi. 62, t. 905. Nyman, 497. *Baxt.* t. 158. Fl. Oxf. 193.

Denizen. Septal. Hedgerows, &c. Local and rather rare. Under-shrub. P. June-August.

First recorded by Mr. Gotobed in the *Botanist's Guide*, 1805.

1. *Isis*. Buckland.
2. *Ook*. Blewbury. Near East Hagbourn, *Lousley in Russell's Cat*.
3. *Pang*. Hampstead Norris, *Lousley, l.c.* Between Tilehurst Station and the Brickyard. Bucklebury.
4. *Kennet*. In Berks, but near Adbury, Hants, certainly naturalized if not indigenous, *Bicheno in Mavor*. Near Kintbury.
5. *Loddon*. In a hedge near Old Windsor, *Gotobed*. Hurst Grove, *Melvill*. Park Place, *Stanton*. Cookham. Wargrave, *Britt. Contr.* Twyford. Barkham. Arborfield.

Vinca major is recorded for all the bordering counties, but not for East Gloucestershire.

***V. minor**, Linn. Sp. Pl. 209 (1753). *Lesser Periwinkle*.

Vinca Pervinca minor, Ger. Em. 894.

Top. Bot. 275. Comp. Cyb. Brit. 246. Syme, E. B. vi. 63, t. 906. Nyman, 497. Fl. Oxf. 194.

Denizen. Septal. Thickets, hedges, &c. Rather rare. Under-shrub. January-October.

First recorded in *Sir Jos. Banks' MSS.* about 1770, and published by Mr. Bicheno in *Mavor's Agr. Berks*, 1809.

1. **Isis.** Merley Wood, flore pleno, *Sir J. Banks.*
2. **Ock.** Milton, *Boswell.* Little Hendred, *Lomax.* Near Abingdon, *F. Stone.* Goosey, *Wait.* Lockinge, planted. Sunningwell and Bayworth.
3. **Pang.** Langley, *W. M. Rogers.* Tilehurst. De la Bere. Pangbourn, *Tufnail.* Near Cold Ash.
4. **Kennet.** Kintbury. Stockeross. Benham, *Reeks in Britt. Contr.* Coley Park, in great plenty, *Tufnail.* Wickham, *Mrs. Batson.* Abundant in a coppice from Greenham Common to Lower Farm, *Bicheno, l. c.*
5. **Loddon.** Road between Easthampstead and Wokingham, *Penny.* Abundant at Park Place, *Stanton.* Wargrave. Arborfield. Ascot. Windsor Park.

It never produces seed, so far as my experience goes, and I think was originally introduced in all its Berkshire stations.

V. minor occurs, in a more or less naturalized state, in all the bordering counties.

GENTIANACEAE, Dumort. Anal. Fam. 20. 25 (1829).

BLACKSTONIA, Huds. Fl. Angl. 146 (1762).

Chlora, Adans. Fam. ii. 503 (1763).

B. perfoliata, Huds. l. c. *Yellow Centaury, Perfoliate Yellow-wort.*

Chlora perfoliata, Linn. Syst. ed. 12, 267. *Gentiana perfoliata*, Linn. Sp. Pl. 232 (1753). *Centaurium parvum luteum Lobelii*, Ger. Em. 547.

Top. Bot. 280. Syme, E. B. vi. 72, t. 913. Nyman, 501. Fl. Oxf. 196.

Native. Pascual. Dry banks on chalk or sometimes on clay. Local and uncommon. A. June–September.

First record. *Small Centorie*, with a yellow flower, *MS. in Lyte's Herball*, 1660. *Chlora perfoliata*, Mr. Fardon in *Bot. Guide*, 1805.

1. **Isis.** Eynsham, between the third and fourth milestone from Oxford, in a field on the right-hand side of the road going from Botley to Eynsham, *Benwell*, 1812. In an old stone-pit between the old and the new road from Oxford to Eynsham, nearly opposite to Wytham Wood. About Appleton and Eaton, *Miss Hoskins, Baxt. Phaen. Bot. n. 69* (1834).
2. **Ock.** Marcham, *Walker.* Groweth on ye side of the hill beyond Hinksey, *MS. note in Lyte.* Railway-side near Upton.
3. **Pang.** Near Reading, *Fardon, l. c.* Streatley, *Pamplin.* Shooter's Hill. Sulham, *Tufnail.* Near Basildon.
5. **Loddon.** Bisham Wood, *Mill.* Park Place, *Stanton.*

Blackstonia, a fast-decreasing species in Berkshire, is recorded for all the bordering counties.

ERYTHRAEA, Renealm, Spec. 77, ex Borck. in Roem.

Arch. 1, 1. (1796) 28.

Centaurion, Adans. Fam. ii. 502 (1763). *Centaurium*, Gilib. Fl. Lituan. i. 35 (1781).

E. Centaurium, Pers. Syn. i. 283 (1805). *Lesser Centaury*.

Centaurium umbellatum, Gilib. Fl. Lituan. l. c. *C. Erythraea*, Rafn.

Danm. Fl. ii. 75 (1800). (*Gentiana Centaurium*, Linn. Sp. Pl. 229

(1753) is *E. ramosissima*, teste Indice Kewensi.) *Chironia Centaurium*,

Schmidt, Fl. Bohem. ii. 31. *Centaurium parvum*, Ger. Em. 547.

Top. Bot. 279. Syme, E. B. vi. 67, t. 909. Nyman, 501. Fl. Oxf. 196.

Native. Pascual. Dry fields, chalk downs, heathy places, open ridings in woods, railway banks, &c. Locally common, and a variable species. A. or B. June–September.

First record. *Chironia Centaurium*, Mr. Bicheno, *Mavor's Agr. Berks*, 1809.

1. Isis. Carswell, *Miss M. Niven*. Buscot, *Bellamy*. Wytham. Pusey. Appleton.

2. Ock. Marcham, *Walker*. Bagley. Boar's Hill. Tubney. Besilsleigh.

3. Pang. Streatley, *Pamplin*. Tilehurst. De la Bere. Pangbourn. Tyfnail. Bradfield. Curridge. Ashridge Wood. Sulham. Basildon. Frilsham. Hermitage.

4. Kennet. *Newbury Cat.* 1839, a white-flowered form in Shaw Woods, *Bicheno in Mavor's Agr. Berks*. Wickham, *Mrs. Batson*. West Ilsley. Catmore. Hodecott. Enborne. Newbury. Hungerford. Kintbury. Ufton. Burghfield. Mortimer. Woodhay.

5. Loddon. Near New Lock, *Mil.* White Knight's roadside, Reading, *Baxter*. Park Place. Warren Row. Crazey Hill, especially fine in the brickyard where the white variety is also found, *Stanton*. Wellington College. Bracknell. So abundant in Sonning Cutting as to cover the slope with its bright-pink flowers, where a broad-leaved form also occurs. Bagshot. Ambarrow. Finchampstead. Risely. Farley Hill. Jouldern's Ford.

At Kintbury in the dry summer of 1896 it occurred as the *forma conferta*.

E. Centaurium occurs in all the bordering counties.

E. ramosissima, Pers. Syn. i. 283 (1805).

E. pulchella, Fries, Nov. ed. 1, 30 (1814), et Hornem. in Fl. Dan. t.

1637. *Gentiana ramosissima*, Vill. Fl. Delph. 23 (1786). *G. pulchella*,

Swartz in Vet. Acad. Stock. Handl. (1783) 84. *Centaurium inapertum*,

Rafn. Danm. Fl. ii. 77 (1800).

Top. Bot. 279. Syme, E. B. vi. 68, t. 910. Nyman, 502. Fl. Oxf. 197.

Native. Ericetal. Dry sandy heaths, very rare. A. July–September.

First recorded by the author in the *Report of Bot. Exch. Club*, 430, 1893.

3. **Pang.** On Curridge Common, rather plentiful, growing with the preceding species; it comes under *f. subelongata*, Witt.

E. ramosissima does not appear to be recorded for Bucks or East Gloucestershire.

According to strict priority the name for this genus is *Centaureion*, as given in Adanson's *Famille des Plantes*, ii. 502 (1763). The objection may be urged that this is too similar in spelling to the genus *Centaurea*, but in my opinion this reason is not sufficient. If Adanson's genus be adopted, our plants will be *Centaureion Centaureum* and *Centaureion pulchellum* (*Centaureum inapertum*), Rafin. Danm. Fl. ii. 77 (1800).

GENTIANA, Linn. Gen. n. 285 (Tournefort, Inst. t. 40).

G. Pneumonanthe, Linn. Sp. Pl. 228 (1753). *Calathian Violet*.

Pneumonanthe, Ger. Em. 438.

Top. Bot. 276. Syme, E. B. vi. 73, t. 914. Nyman, 498.

Native. Ericetal. Damp places on heathy ground. Very local and rare. P. August–September.

First record. *Gentiana palustris angustifolia*, C.B.P. In ericetis humidoribus et pinguioribus comitatus Bercheriensis (Bobart), in Morison, Hist. Ox. iii. 483, 1699.

4. **Kennet.** Sulhampstead Common, Dr. Beeks in Lyson's *Magna Brit.* 1806. Probably extinct, as much of the common land is now enclosed.

5. **Loddon.** Mr. C. R. Ashbee has shown me specimens of this plant collected by him last summer at Wildmoor Bottom, near Wokingham, J. Britten in Journ. Bot. (1879) 44. Wildmoor Bottom is near Sandhurst, about six miles from Wokingham.

Gentiana Pneumonanthe is only recorded for Surrey and Hants of the counties bordering Berkshire.

G. Amarella, Linn. Sp. Pl. 230 (1753). *Autumnal Gentian, Felwort*.

Gentianella fugax minor, Ger. Em. 437. *G. axillaris*, Reichb. Ic. Pl. Crit. ii. t. 130. *G. Amarella*, var. *axillaris*, Reichb. Ic. Fl. Germ. et Helv. xvii. 4.

Top. Bot. 276. Syme, E. B. vi. 76, t. 917. Nyman, 500. Fl. Oxf. 194.

Native. Pascual. Pastures on limestone, grassy chalk downs, &c. Locally abundant. A. July–October.

First record. *G. Campestris* [sic], on Ilsley Down, Mr. Bicheno, *Mavor's Agr. Berks*, 1809 (*G. Amarella* is not given there). *G. Amarella*, about Marlow, Mr. G. G. Mill in *Phyt.* i. 990, 1843.

1. **Isis.** Ashbury. Idstone. Near Cumnor. Wytham.
2. **Ook.** Sparsholt, Bellamy. Uffington. Letcombe. White Horse Hill. Letcombe Castle. Lockinge. King Standing Hill. Lowbury. Blewbury. Abundant along the Chalk escarpment. Cherbury Camp. Near Cumnor. Wittenham.

3. **Pang.** Streatley, *Pamplin*. Abundant on the chalk as at Basildon, Pangbourn, Ashampstead. Haw-pit Farm. Moulsoford. Compton and Ilsley Downs. Very large specimens occurred near Ilsley, Streatley, and Sulham.
4. **Kennet.** Abundant on the West Ilsley and Lambourn Downs. On Walbury Camp and Gibbet Hill. Near Farnborough. Sandford.
5. **Loddon.** On the chalk near Marlow, sometimes of great size and beauty, *Mill*, *l. c.* Park Place, Rose Hill, *Stanton*. Bisham Wood, *Melville*. Quarry Wood. Cookham. Culham. Stubbing's Heath, with very reddish purple flowers. Waltham, &c.

Var. **PRAECOX**, Raf. *G. lingulata*, C. A. Agardh, Phys. Sällsk. Årsb. (1824) 27, var. *praecox*, Murbeck, in Acta Horti Bergiana, Band 2, No. 3, (1892). This form of *G. Amarella*, which flowers much earlier in the year, i.e. May-July, occurs on the Lambourn, West Ilsley, and East Ilsley Downs, and is probably the plant referred to by Dr. Trimen in *Journ. Bot.* (1878) 265-266, as follows: 'The Berkshire specimens differ from all the above in the wider form of the corolla-tube with blunt segments and in having oblong-spathulate obtuse leaves. All the flowers are 4 merous, and the pair of calyx-segments very unequal. The only other specimens I have seen which can be considered as probably the same are from Tyrol (Huter), and are labelled "*G. germanica*, var. *pygmaea*"; and on the whole I am more inclined to place the Berks plant to *G. germanica* than to *G. Amarella*. Early flowering states of the former have already been recorded. It is remarkable that the spring flowering forms of both species should vary in precisely the same manner, with 4-merous flowers and two of the calyx-segments much increased in size.' The specimens were collected by Dr. Trimen on June 2, 1866, on the White Horse Hill, and are in *Herb. Brit. Mus.* They appear to me to be rather an abnormal form of the var. *praecox*. I can see no relationship with *G. germanica* or with *G. campestris*. They have tetramerous flowers and sub-equal calyx-lobes.

G. Amarella occurs in all the bordering counties.

G. campestris, Linn. Sp. Pl. 231 (1753). *Field Gentian*.

G. pratensis flore lanuginosa, Ray, Syn. 275.

Top. Bot. 277. Syme, E. B. vi. 77, t. 919. Nyman, 500. Fl. Oxf. 195. Native. Pascual. Dry open pastures and heathy commons. Very local. A. or B. August-October.

First certain record. *G. campestris*, Dr. J. Bunny in *Russell's Cat.* of 1839.

- [2. **Ock.** White Horse Hill, *Trimen*, *Britt. in Journ. Bot.* (1873) 139. The specimens are not *G. campestris*, but probably *G. Amarella*, var. *praecox*.]

3. **Pang.** [Ilsley Downs, Bicheno in *Mavor's Agr. Berks*, 1809, is

almost certainly an error for *G. Amarella*, which is not given by Mavor.] Sulham, *Tufnail*, now lost.

4. Kennet. Wickham, *Mrs. Batson*. (I have not seen the specimen.) Wash and Woodhay Common, *Bunny, l.c.* Downs above West Woodhay, *Reeks in Britt. Contr.* Greenham, *Mr. Tufnail, jun.* In a field near Enborne Street, *Jackson*. Plentiful in Sandleford Priory Park.

I think the Sandleford and Enborne Street plants are probably the *Gentiana baltica*, Murbeck, as they agree fairly with the figure in Syme, *E. B. t.* 919, reprinted from the *E. B. t.* 237, which is referred to that plant by Herr Murbeck, but I have seen no authentic specimen of *G. baltica*. The corolla tube is distinctly shorter than the calyx in the Enborne Street plant, but not in the specimens from Sandleford Priory, but the leaves are rather ovate than spatulate in specimens from both localities. The more usual plant of Britain is named *G. germanica*, by Murbeck, but this is a sub-species or variety of *G. campestris*, and not the *G. germanica* of Willdenow.

G. baltica is not recorded for any of the bordering counties.

G. campestris is recorded for Hants, Wilts, and Oxfordshire (where it is very rare, if not extinct).

G. germanica, Willd. *Sp. Pl. i.* 1346 (1797).

G. critica, Ehrh, *Herb.* 152, et ex Griseb. *Gen. et Sp. Gent.* 244.

G. Wettsteinii, Murbeck.

Top. Bot. 277. Syme, *E. B. vi.* 76, t. 918. Nyman, 500. *Fl. Oxf.* 195. Native. Glareal and pascual. Dry chalk downs on the northern escarpment. Very local. A. or B. September–October.

First record. *G. germanica*, from Streatley, by Mr. Pamplin in *Phyt. i.* 381, 1842.

2. Ock. Abundant on Letcombe Castle, where it was gathered by Mr. Bellamy in 1890, and near Upton by Miss Fry in the same year. The Upton specimens are not typical and may need a varietal name.

3. Pang. Streatley, Pamplin. Considerable doubt exists as to the correctness of the naming of Pamplin's specimens, as the plant has not since been recorded from that locality.

Mr. Luxford, to whom Mr. Pamplin sent specimens, thought the Streatley *G. germanica* to be only a large form of *G. Amarella*, and it is very possible that he only had the large form of that species (which occurs at Streatley) before him. Luxford, in describing the Streatley plant, does not state that the flowers are larger than in *G. Amarella*.

At Letcombe, *G. germanica* is associated with *G. Amarella*, but most of the specimens of the latter plant are out of flower by the time

G. germanica is in full bloom. Specimens from Letcombe were distributed through the *Bot. Exch. Club* by the author in 1892.

× *G. PAMPLINII*, Druce in Rep. of Bot. Exch. Club, 379 (1892) = *G. AMARELLA* × *GERMANICA*. *G. axillaris* × *Wettsteinii*, Wettst. in lit.

This interesting hybrid was noticed for the first time by the author in September, 1892, growing with *G. Amarella* and *G. germanica* on the earthwork called Letcombe Castle. In this locality a good deal of *G. Amarella* continued in flower with *G. germanica*; usually it is an earlier flowering plant. The obconical tube of the flower of *G. germanica* fully distinguishes it from the nearly cylindric tube of *G. Amarella*. In this instance a few plants of a distinctly intermediate character were found; they had a longer and more conspicuous corolla than *G. Amarella*, but the corolla tube was more cylindric than in *germanica*; the pollen was defective, and the plant was distinctly an intermediate. Specimens were sent, in 1892, to Dr. von Wettstein, who has kindly written to me saying that he has no doubt that they are a hybrid (*G. axillaris* × *Wettsteinii*) from their intermediate appearance, from the pollen grains being only about 58 per cent. perfect, and from the fact that the plant occurred with the parents. See *Annals of Botany*, x. (Dec. 1896) 621.

G. germanica is, I think, distinct from *G. Amarella*. In addition to the above character the leaves are broader than those of *G. Amarella*, and the colour of the flowers considerably lighter, more blue than purple, and often lilac. It occurs more plentifully where the grass is very short and sparse. A. von Kerner agrees that my Berkshire plant is true *germanica*.

G. germanica is recorded for Oxfordshire, Surrey, Bucks, and Hants; in the latter county it occurs very near to our border, near Water-ship, an extension of the Walbury range of chalk hills.

MENYANTHES, Linn. Gen. n. 185 (Tournefort, Inst. t. 15).

M. trifoliata, Linn. Sp. Pl. 145 (1753). *Marsh Buckbean*, *Bogbean*, *Trefoil Buckbean*.

Trifolium palustre, J. Bauhin. *T. paludosum*, Ger. Em. 1194.

Top. Bot. 281. Syme, E. B. vi. 79, t. 920. Nyman, 503. Fl. Oxf. 197. Native. Uliginal. Marshes, bogs, and borders of slow streams and ponds. Locally common, but absent from large areas. P. May-October.

First record. *M. trifoliata*, Dr. Noehden, *Mavor's Agr. Berks*, 1809.

1. **Isis**. Bogs between the old and new road to Ensham, abundant, *Baxter in Walk. Fl.* By a stream under Wytham Wood. Buckland.
2. **Ock**. Wootton, *Boswell*. It grows in the pond in Lower Farm Close, Blewbury, and amongst the rushes in Hagbourn Moor,

Lousley in *Russell's Cat.* Foxcombe Hill. Cothill. Abingdon. In the meadows between Radley and Abingdon, abundantly.

3. **Pang.** Oare Wood, in a pond, *Lousley*, l.c. Fence Wood, *Dr. Bridges*. It is very abundant and luxuriant there.
4. **Kenet.** Bagnor Marsh. Wash Water, *Bunny* in *Russell's Cat.* Mortimer, *F. Tufnail*. Milford Pond, *Weaver*. Weston Marsh, *Osmond*. Burghfield Heath, *Bird*, 1833. Kintbury, *Jackson*. Greenham Common. Aldermaston, near the Decoy pond. Near Padworth. Between Newbury and Beenham. Hampstead Marshall. Snelsmore.
5. **Loddon.** By the Strand at Cookham, abundantly, *Mill*. Crazy Hill, in a wet meadow near the Spring, *Stanton*. Sandhurst. Near Wellington College Station. Near Long Moor, abundant. Windsor Great Park.

Menyanthes is recorded for all the bordering counties.

LIMNANTHEMUM, S. P. Gmelin in Nov. Comm. Ac. Petrop. xiv. i. (1769) 527.

L. peltatum, Gmel. l. c. *Fringed Water-lily*.

L. Nymphoides, Hoffmg. et Link, Fl. Port. i. 344. *Menyanthes nymphoides*, Linn. Sp. Pl. 145 (1753). *Villarsia Nymphoides*, Vent. Choix, sub t. 9.

Top. Bot. 281. Syme, E. B. vi. 80, t. 921. Nyman, 503. Fl. Oxf. 197.

Native. Lacustral. In the still pools of the Thames and ornamental waters. Local. P. July-August.

First record. *Nymphaea lutea minor flore fimbriata*, C. B. P. Fluviis potius quam stagnantibus aquis gaudet circa Oxoniam satis frequens (*Bobart*), *Morison*, Hist. Ox. iii. 513, 1699.

1. **Isis.** Near Oxford, *Bobart*. Hinksey Ferry, *Baxter* in *Purt. Midl. Fl.* Bablock Hythe. Above Wytham.
2. **Ock.** Between Sandford and Nuneham, *Baxter* in *Walk. Fl.* Between Kennington and Radley, plentiful, 1835, *Baxter*. Abingdon. Sutton.
3. **Pang.** Lake Purley Hall Park, *Tufnail*.
4. **Kenet.** Aldermaston Park, *Tufnail*.
5. **Loddon.** Ditches about Maidenhead [at Bray], *Woods* in *Winch*, add. Near Cookham, *Hurst*, MSS. in *New Bot. Guide*. By Bisham Wood, *Britten*. Wargrave, *Miss Jekyll*. Near Quarry Wood and Medmenham, *Melville*. Abundant near Park Place, *Stanton*. White Knights' Lake, *Tufnail*. Hurley, *G. D. Leslie*. Still part of the Thames at Eton, *Dyer*, *Phyt.* 367, 1862-3. Between Wargrave and Shiplake. Near Windsor. Between Park Place and Hemerton.

It is recorded for Oxfordshire, Bucks, and Surrey.

POLEMONIACEAE, DC. Fl. Fr. 3, 645 (1805).

Polemonaceae, Vent. Tabl. 2, 398 (1799).****POLEMONIUM CAERULEUM**, Linn. Sp. Pl. 162 (1753). *Jacob's Ladder*, Greek *Valerian*.

Top. Bot. 281. Syme, E. B. vi. 82, t. 922. Nyman, 503. Fl. Oxf. 198.

Alien. Hedge-sides and waste places. P. June-August.

First recorded in *Milne and Gordon's Indigenous Botany*, 304, 1793.4. **Kennet**. Between Reading and Speenhamland, *Milne and Gordon*. Also, on the authority of Mr. Bicheno, in *Mavor's Agr. Berks*, 1809.5. **Loddon**. On a ditch-bank near Windsor, but may possibly be the outcast from a garden, *Gotobed in Bot. Guide*, 1805.

This plant, which is extensively cultivated in gardens, is found nowhere in Berkshire or the bordering counties in a native condition.

BORAGINACEAE, Lindl. Nat. Syst. ed. 2, 274 (1836).

Ehretiaceae, Schrad. Diss. Asperif. 20 (1820).**CYNOGLOSSUM**, Linn. Gen. 168 (Tournefort, Inst. t. 57).**C. officinale**, Linn. Sp. Pl. 134 (1753). *Hound's Tongue*.

Top. Bot. 329. Syme, E. B. vii. 118, t. 1118. Nyman, 521. Fl. Oxf. 205.

Native. Viatical and glareal. Waysides, dry woods, heaths, commons, chiefly on gravelly or calcareous soil. Local. P. or B. June-August.

First record. *Cynoglossum vulgare*, C. B. P. circa Readingum oppidum idem floribus candidis observavimus (*Bobart*), *Morison, Hist. Ox.* iii. 448, 1699. *Cynoglossum flore albo*, neere Redding, *Mr. W. Broune's MSS.* 1656.1. **Isis**. Carswell, *Miss M. Niven*. Near Besilsleigh. Buscot. Wytham. Strattenborough Castle.2. **Ock**. About two miles on the Oxford side of Abingdon, *Baxter in Walk. Fl.* Amongst the bushes round West Hagbourn meadow and in the Cow Lane, but not plentiful, *Lousley in Russell's Cat. Marcham, Walker*. Hendred, *Hewett's Hist.* Besilsleigh and Tubney.3. **Pang**. Compton, *Hewett's Hist.* Ashampstead.4. **Kennet**. Welford, *Mrs. Batson*. Very fine specimens in Hampstead Marshall Park.5. **Loddon**. Near Reading, *Bobart*. Early railway-bank, *Tufnail. Park Place, Stanton*. Windsor Park, *Bolton King*. Near Twyford, *Stansfield*. Stubbing's Heath.Var. **SUBGLABRUM**, Bromf., Phyt. iii. (1849) 571.This variety or form, which occurs in Wytham, is often mistaken for the rarer *C. montanum*. They may be distinguished by the hairs in *C. officinale* not having a bulbous base. In *C. montanum* the base is distinctly swollen.

The white-flowered plant, mentioned by Bobart, I have never seen.
Cynoglossum officinale occurs in all the bordering counties.

[**C. MONTANUM**, Hojer in Linn. Amoen. Acad. iii. 402 (1764) et Lam. Fl. Fr. ii. 277.
C. germanicum, Jacq. Obs. Pl. Crit. ii. 31 (1767). *C. sylvaticum*, Haenke, in
 Jacq. Coll. ii. 77 (1788).

Top. Bot. 329. Syme, E. B. vii. 119, t. 1119 (but not a good figure). Nyman,
 521. Fl. Oxf. 206.

Is recorded for Oxfordshire, Surrey, and Gloucestershire, and is not
 unlikely to be found on the Greensand in Berkshire, as it occurs on that
 formation in Oxfordshire.]

ASPERUGO, Linn. Gen. n. 173 (Tournefort, Inst. t. 54).

****A. PROCUMBENS**, Linn. Sp. Pl. 138 (1753).

German Madwort.

A. vulgaris, J. R. H. 135, Ray, Syn. 228.

Top. Bot. 328. Syme, E. B. vii. 120, t. 1120. Nyman, 523.

Alien. Waste ground. Rare. A. June-October.

First found in Berkshire by the author in 1890.

2. **Ock**. On waste ground at Grandpont. See *Rep. of Bot. Exch. Club*
 (1892), 379. By the railway at Didcot.

4. **Kennet**. By the railway at Newbury, *Weaver*.

Asperugo has been found in Oxfordshire and Surrey, but it does not appear
 to be permanently established.

SYMPHYTUM, Linn. Gen. n. 170 (Tournefort, Inst. t. 56).

S. officinale, Linn. Sp. Pl. 136 (1753). *Comfrey*.

Top. Bot. 327. Syme, E. B. vii. 114, tt. 1115-6. Nyman, 509. Fl. Oxf. 200.

Native. Paludal. Sides of rivers and brooks, marshes, ditches, &c.

Common in the low-lying districts. P. May-August.

First record. *Consolida major flore rubro*, by Redding, and *Symphytum*
fl. Ceneritio, everywhere about Reading, *Merrett's Pinax*, 1666. About
 Oxford, abundantly, *MS. in Lyte's Herball*, 1660. With *Uredo*
symphyti, DC. on it about Oxford, *Baxst. Phaen. Bot.* n. 101 (1835).

'The Comfrey appears in great abundance on the river-bank,
 rearing its bold form above the lowlier herbage. When in blossom,
 decorated with the cluster of pendent bell-shaped flowers, varying in
 every shade of colour from white to deep purple, the Comfrey is one
 of the most ornamental among the many floral beauties that grace the
 waterside,' *Hall's Book of the Thames*, 24.

The Comfrey is too frequent by all the larger streams in the county
 to need a recital of localities. It is particularly abundant in the small
 eyots in the Thames and in the marshy meadows of the Kennet and
 Loddon districts. The flowers, as Mrs. Hall remarks, are of varying
 tints of colour—pure white, greenish or yellowish white, ashy grey,
 lilac, purple, and dull and bright red; these forms may be grouped
 under the name *f. colorata*.

The purple or reddish-flowered plant is often called var. *patens*
 (Sibth. Fl. Ox. 70, 1794). Sibthorp described *S. patens* as a species with

a distinguishing character 'calyce patente tubo corollae breviori'; it was found, he says, on the banks of the Thames near Caversham, and Mr. J. Woods noticed it above Windsor in 1810. I fail to see in the specimen in the Oxford Herbarium, so named by Sibthorp, any marked difference in the calyx; the plant is only a rather luxuriant purple-flowered form of *S. officinale*.

S. officinale is found in all the bordering counties.

[*S. TUBEROSUM*, Linn. Sp. Pl. 136 (1753).

Top. Bot. 327. Syme, E. B. vii. 116, t. 1017. Nyman, 509.

Is reported from Surrey, but probably is not native.]

****S. ASPERRIMUM*, Donn, in Bot. Mag. t. 929 (1806). *S. peregrinum*, Ledeb. Ind. Sem. Hort. Dorpat. (1820) 4. *Cultivated or Prickly Comfrey*.

Comp. Cyb. Br. 548. Syme, E. B. vii. 121. Fl. Oxf. 201.

Alien. Waste places, a relic of cultivation in arable ground. Rare. P. June-August.

1. Isis. Cumnor.
2. Ock. Shippon. Near Abingdon.
3. Pang. Near Reading.
5. Loddon. Near Maidenhead. Ambarrow.

This has been somewhat extensively cultivated for fodder, and is probably a cultivated race of *S. asperrium*, or possibly a hybrid of that species with *S. officinale*. The plants are obviously not native.

BORAGO, Linn. Gen. n. 172 (Tournefort, Inst. t. 53).

**B. OFFICINALIS*, Linn. Sp. Pl. 137 (1753).

Borage.

Borago hortensis, Gerard, 653.

Comp. Cyb. Br. 548. Syme, E. B. vii. 112, t. 1114. Nyman, 509. Fl. Oxf. 200.

Alien. Viatical. Waste ground near and about villages. Scarcely naturalized. A. or B. May-September.

First record. *B. officinalis*, Dr. Noehden, but without locality, in *Mavor's Agr. Berks*, 1809.

1. Isis. Longworth. Wytham.
2. Ock. In the street near the 'Load of Mischief,' in the road on the south side of Blewbury, and in a few other places, *J. Lousley in Russell's Cat.* Grandpont. Waste ground near Abingdon, and on rubbish on Abingdon Racecourse. In Kennington Lane.
3. Pang. Near Ashampstead. Railway-side near Reading.
4. Kennet. Wickham, *Mrs. Batson*. Greenham. Near Southcote.
5. Loddon. Arborfield, *Taylor*. Aston Ferry. Twyford. Railway-side near Maidenhead.

The Borage is only a rare casual plant in Berkshire, and soon disappears from its stations.

Borago is found more or less naturalized in all the bordering counties.

ANCHUSA, Linn. Gen. n. 167 (*Buglossum*, Tournefort, Inst. t. 63).

***A. OFFICINALIS*, Linn. Sp. Pl. 133 (1753). *Alkanet*.

Cyb. Br. ii. 280. Syme, E. B. vii. 110, t. 1112. Nyman, 510.

Casual. Gravelly heaths. Very rare. P. August-September.

First found in the county by the author, in a gravelly and heathy piece of ground near Finchampstead in the Loddon district, in 1891. No other introduced plant was near, but a pheasant cover was not far distant. Possibly the seeds were brought with pheasant-food, but I could see no

Buckwheat about. Specimens from this locality were distributed through the *Bot. Exch. Club*. See *Report*, 341 (1891).

A. officinalis has not, I believe, been recorded for the bordering counties.

**A. SEMPERVIRENS*, Linn. Sp. Pl. 134 (1753). *Evergreen Alkanet*.

Borago sempervirens, Ger. 653.

Cyb. Br. ii. 281. Syme, E. B. vii. 111, t. 1113. Nyman, 510. Fl. Oxf. 201.

Alien. Viatical. Waysides, waste places, shrubberies. B. June–August.

First recorded by Dr. Beeke in *Baxt. Phaen. Bot.* n. 48, 1834.

1. *Isis*. Buscot, but undoubtedly planted.

2. *Ock*. Denchworth, casual, *Wait*.

4. *Kennet*. Newtown, *Jackson*.

5. *Loddon*. Between Maidenhead and Kenton, *Beeke*, l. c. 1834. Naturalized at Park Place, *Tufnail*.

A. sempervirens is reported as a more or less naturalized plant from Oxfordshire, Surrey, Hants, and Wilts.

LYCOPSIS, Linn. Gen. n. 174 (*Echioides*, Dill. Gen. 3).

L. arvensis, Linn. Sp. Pl. 139 (1753). *Field Bugloss*.

Anchusa arvensis, M. Bieb. Fl. Taur. Cauc. i. 123.

Top. Bot. 328. Syme, E. B. vii. 109, t. 1111. Nyman, 511. Fl. Oxf. 201.

Native or colonist. Cultivated fields, hedge-banks, waste places, occurring chiefly in sandy soil. Local. A. or B. May–October.

First record. Sonning, *Mr. S. Rudge*, 1800, in *Herb. Brit. Mus. Lycopsis arvensis*, Dr. Noehden, *Mavor's Agr. Berks*, 1809.

1. *Isis*. Buckland, *Boswell*. Carswell, *Miss M. Niven*. Wytham. Besilsleigh. Appleton. Longworth.

2. *Ock*. Foxcombe Hill, *Whitwell*. With *Erysiphe Asperifoliorum*, Grev. in the neighbourhood of Oxford, *Baxter*, n. 21. Denchworth, *Wait*. Marcham, *Walker*. Cole's Pits, *Bellamy*. Tubney, *Fl. Oxf.* Dry Sandford. Radley. Cothill. Sunningwell. Wittenham. Wallingford. Kingston Bagpuze. Frilford.

3. *Pang*. Sandy Lane, *W. M. Rogers*. Sulham. Tilehurst, *Tufnail*. Tidmarsh. Near Unwell Wood. Frilsham.

4. *Kennet*. Newbury, *Weaver*. Shaw fields, *Bunny* in *Russell's Cat.* 1839. Beedon, near 'World's End,' *W. M. Rogers*. Theale. Aldermaston. Southcote. Wickham. Kintbury.

5. *Loddon*. Wellington College, *Penny*. Sonning, *Rudge*. Wargrave, *Melville*. Remenham and Culham, *Stanton*. Near the field-path to Hurley, *Mill*. Ambarrow. Finchampstead. Most abundant in Sonning Cutting. Bagshot. Sandhurst. Wokingham. Bracknell. Maidenhead. Twyford. Bray. Clewer. Windsor Park. Bisham. Cookham.

L. arvensis occurs in all the bordering counties.

***PULMONARIA OFFICINALIS*, Linn. Sp. Pl. 135 (1753). *Lungwort*.

Comp. Cyb. Br. 548. Syme, E. B. vii. 92, t. 1098. Fl. Oxf. 202.

Occurs in shrubberies, &c., as at Radley, but it is not a native of Britain.

P. March-May.

2. Ock. Near Bagley Wood is one of its reported stations. I have not seen it there; if it occurs it is probably as a garden escape.

It is recorded for the counties of Oxford, Hants, and Wilts.

[*P. angustifolia*, Linn. Sp. Pl. 135 (1735).

Lungwort.

Syme, E. B. vii. 91, t. 1097. A native of South Hampshire, which is also reported for Surrey.]

MYOSOTIS, Linn. Gen. n. 165 (Dill. Gen. 3).

M. caespitosa, Schultz, Prod. Fl. Starg. Suppl. i. 11 (1819).

M. arvensis, var. *maritima*, Fries. Fl. Hall. 39 (1817). *M. lingulata*, Lehman, Asper. 110.

Top. Bot. 324. Syme, E. B. vi. 98, t. 1103. Nyman, 519. Fl. Oxf. 204. Native. Paludal. Pond-sides, wet marshy places, damp heaths, &c.

Locally common, but much less widely distributed than *M. palustris*. B. or P. May–September.

First recorded by Mr. T. F. Forster from Binfield in *Sm. Engl. Fl. i.* 250, 1824.

1. Isis. Carswell, *Miss M. Niven*. Bablock Hythe, *Boswell*. Cumnor. Wytham.

2. Ock. Boar's Hill. Frilford, *Fl. Oxf.* Cothill. Abingdon. Marcham. Steventon. Plentiful near Didcot.

3. Pang. Cold Ash. Oare. Bucklebury.

4. Kennet. Bog on Woodhay Common, *Russell's Cat.* Greenham Common, *Rupert Jones*. Burghfield. Aldermaston. Snelsmore. Beenham. Inkpen. Crookham. Theale. Bucklebury. Kintbury. Woodhay.

5. Loddon. Binfield, *Forster*. Crazey Hill. Warren Row Common, *Stanton*. Ruscombe. Twyford. Easthampstead. Ambarrow. Bearwood. Wellington College. Finchampstead. Risely. Barkham. Bracknell. Wokingham. Loddon Bridge. Coleman's Moor. Bulmarsh. Early. Arborfield. Ascot. Windsor Park. Near Virginia Water. Sandhurst.

The flowers vary considerably in size and occasionally are found of a pure white, as at Wytham and also near Virginia Water. A very pretty form occurred near Loddon Bridge. A large straggling plant, which occurs at Greenham and Aldermaston, may be the var. *LAXA*, Asch. Fl. Brand. 448.

Myosotis caespitosa is recorded for all the bordering counties.

M. palustris, Lam. Fl. Fr. ii. 283 (1778). *Forget-me-not.*

M. scorpioides palustris, Ger. Em. 338. *M. scorpioides*, var. *b*, Linn. Sp. Pl. 131 (1753).

Top. Bot. 322. Syme, E. B. vii. 99, t. 1104. Nyman, 519. Fl. Oxf. 203. Native. Paludal. Sides of rivers, brooks, and ponds, and wet places;

very common and generally distributed along all our streams,

but replaced in the heathy district of the south-west, at least in the upland bogs, by the preceding plant. P. April-August.

First record. Sonning, *Mr. S. Rudge in Herb. Brit. Mus.* 1800. Included in *Mavor's Agr. Berks*, 1809.

'In no place do we remember to have met with the Forget-me-not in such beauty and luxuriance, as in some of the fresh grassy nooks that we every now and then come upon, in the course of our voyage down the Thames,' *Hall's Book of the Thames*, 269.

In 1892 the flowers were conspicuously large and plentiful during the drought. The plant is a great ornament to our river-sides, and is a beautiful feature of the Kennet valley, making a charming contrast with *Lychnis Flos-cuculi* and *Iris Pseud-acorus*.

Var. *STRIGULOSA* (Reichb. Fl. Germ. Exc. 342, as a species), Early, *Tufnail*. Coleman's Moor, and probably elsewhere.

Var. *HIRSUTA*, A. Braun, occurs at Abingdon, Marcham, Hurst Green, South Hinksey, Cumnor.

The foliage and the lower part of the stem is distinctly pubescent with patent hairs. I suspect this to be the *M. repens* recorded by Mr. Baxter from South Hinksey, as occasionally it has procumbent branch-like stolons, which are leafy in August.

Myosotis palustris occurs in all the bordering counties.

M. repens, G. Don, Gen. Syst. iv. 344 (1838); see Hook. Fl. Scot. 67 (1821).

Top. Bot. 323. Syme, E. B. vii. 101, t. 1105. Nyman, 519. Fl. Oxf. 204. Native. Paludal. Wet heathy places, and margins of ponds. Rare. P. July-September.

First record. [Beyond South Hinksey in a ditch near the road going up the hill. A little way beyond South Hinksey, south-west of the Church, *Baxter MSS.* 1831. I think these records refer to a form of *M. palustris*.] First certainly recorded by Mr. H. C. Watson in *Britt. Contr.* 1871.

4. Kennet. Burghfield. Greenham. Near Beenham.

5. Loddon. Bagshot, *Watson*. Near Cumberland Lodge, *Bolton King*. Sandhurst. Easthampstead Plain.

M. repens is recorded for all the bordering counties except Oxfordshire and East Gloucestershire.

M. sylvatica, Hoffm. Deutsch. Fl. ed. 1, 61 (1791). *Wood Forget-me-not*.

Top. Bot. 324. Syme, E. B. vii. 103, t. 1107. Nyman, 520. Fl. Oxf. 205. Native. Sylvestral. Hanging wood on the Chalk escarpment. Very local. P. June-July.

First found in Berkshire by the author in 1890, and recorded in *Rep. Bot. Exch. Club*, 307, 1896.

4. Kennet. In great plenty in Riever Wood, which is a picturesque

hanging wood on the north escarpment of the Chalk forming the south-west boundary of the county, June, 1890, *the author*, l. c. It occurred not only with the usual rich blue flowers, but with flowers of a very pale tint, and also with pure white blossoms, *f. alba*. The upper limit of its growth was probably not far short of 800 feet in altitude.

M. sylvatica is recorded for Surrey, Hants, Gloucestershire, and, in the locality given above, it extends also into Wilts. In Dropmore Park, Buckinghamshire, the var. *lactea*, Boenn. Prod. Fl. Monast. 56, occurs, but it is doubtless the offspring of cultivated plants.

M. annua, Moench, Enum. Pl. Haas. 81 (1777). *Mouse-Ear Scorpion Grass*.

M. arvensis, Lam. Fl. Fr. ii. 213 (1778), not of Hill. *M. intermedia*, Link, Hort. Berol. i. 164 (1821-2). *M. Scorpioides*, Linn. Sp. Pl. 131 (1753), p. p., not of Hill, Veg. Syst. vii. 55, t. 52 (1772), which is *M. palustris*. *M. scorpioides arvensis hirsuta*, Ger. Em. 338.

Top. Bot. 325. Syme, E. B. vii. 105, t. 1108. Nyman, 520. Fl. Oxf. 204. Native. Agrestal and sylvestral. Woods, cultivated fields, hedge-banks, waste ground, fallow fields, &c. Very common and generally distributed. A. April-July.

First record. *M. arvensis*, Field-Mouse Ear, Dr. Noehden, *Mavor's Agr. Berks*, 1809.

Var. **UMBROSA** = *M. arvensis*, var. *umbrosa*, Bab. Man. Brit. Bot. ed. 6, 242. *M. sylvatica*, Pamplin, Phyt. v. (1854) 154, not of Hoffm.

Common in some of the woods on the Chalk, where I have seen extensive tracts coloured blue with it.

M. annua occurs in all the bordering counties.

M. collina, Hoffm. Deutsch. Fl. ed. 1, 61 (1791).

M. hispida, Schlecht. in Ges. Naturf. Freunde Berl. Mag. viii. (1814)

230. *M. arvensis*, Sm. E. B. t. 2558, and Link, not of Lamarck.

Top. Bot. 325. Syme, E. B. vii. 106, t. 1109. Nyman, 520. Fl. Oxf. 204.

Native. Glareal. Heaths, sandy fields, both of arable and pasture, walls, &c. Locally abundant. A. or B. April-June.

First record. Lucas' Hospital, Wokingham, *Mr. Ed. Forster* about 1810 in *Herb. Brit. Mus.*, and *Mr. H. Boswell's MS.* 1860.

1. **Isis**. Carswell, *Miss M. Niven*. Wytham. Cumnor, *Boswell*. Besilsleigh. Pusey. Longworth.

2. **Ock**. Hinksey. Abingdon, *Boswell*. Marcham, *Walker*. Bagley Wood, *Dyer*, 1864. Tubney. Besilsleigh. Boar's Hill. S. Hinksey. Sunningwell. Near Cole's Pits. Frilford. Wittenham.

3. **Pang**. Bradfield, *Jenkinson*. Sulham, *Tufnail*. Bucklebury. Pangbourn. Streatley. Ashampstead. Hawkridge. Frilsham. Compton. Curridge Common. Tilehurst.

4. Kennet. Wickham, *Mrs. Batson*. Mortimer, *Tufnail*. Beenham. Burghfield. Bucklebury. Theale. West Ilsley.
5. Loddon. Lucas' Hospital, Wokingham, *Forster*. Field behind Sandhurst Lodge, *Penny*. Sunninghill, *Watson*. Finchampstead. Long Moor. Bracknell. Bearwood. Sonning. Twyford. Windsor. Cookham. Winter Hill. Wargrave. Ascot, &c.

Var. *MITTENII*, Baker, Journ. Bot. (1870) 244, has been seen at Beenham. Specimens of *M. collina*, with nearly white flowers, occurred at Tubney (*f. pallida*).

The turf on the upper part of Hen Wood is often a very beautiful sight in early spring from the abundance of this plant, which is there very much dwarfed, so that the dark blue flowers appear like little circles of lapis lazuli among the short grass.

M. collina is found in all the bordering counties.

M. versicolor, Sm. E. B. sub t. 2558 (1813). *Small Scorpion Grass*.

M. arvensis, var. *versicolor*, Pers. Syn. i. 156. *M. arvensis*, Hill, Veg. Syst. vii. 55 (1772). The E. B. plate is *M. collina*.

Top. Bot. 325. Syme, E. B. vii. 107, t. 1110. Nyman, 520. Fl. Oxf. 205. Native. Glareal and ericetal. Heaths, dry sandy pastures, dry banks, walls, &c. Locally common. A. or B. March 30-July.

First record. *Echium Scorpoides minus flosculis luteis*, Bauh. Pin. 254, grows within three miles of Redding plentifully, MS. in [How's] Phyt. Brit. before 1659. Published in *Walker's Flora*, 1833.

1. Isis. Besilsleigh, *Newton Young* in *Walk. Fl.* Wytham. Longworth. Pusey.
2. Ock. Cumnor Hurst, *Newton Young*, l.c. Near Childswell Farm, *Baxter*, l.c. Bayworth, *Thurland*. Marcham, *Walker*. Denchworth, *Wait*. Tubney. Frilford. Abingdon. Boar's Hill. Hen Wood. Radley. Hinksey. Didcot.
3. Pang. Bradfield, *Jenkinson*. Bucklebury. Ashampstead. Tidmarsh. Lowbury. Ilsley. Hermitage.
4. Kennet. Newbury, *Russell's Cat.* 1839. Wickham, *Mrs. Batson*. Aldermaston. Burghfield. Hampstead Marshall. Snelsmore. Gibbet Hill. Riever Hill Wood. Sulhampstead. Padworth. Beenham. Theale. Wasing. Silchester. Mortimer. Ashbury. Templeton.
5. Loddon. Warren Row, *Stanton*. Near Reading, *Brown's MS.* Finchampstead, *Penny*. Hurst Grove, *Melville*. Farley Hill. Risely. Shurlock Row. Sandhurst. Long Moor. Easthampstead. Swinley. Bracknell. Wokingham. Bearwood. Early. Bulmarsh. Culham. Sonning Cutting. Stubbing's Heath. Cookham. Bagshot Heath. Sunninghill. Near Virginia Water. Windsor Park, &c.

Var. *BALBISIANA* (Jord. Pugill. 128, as a species). *M. lutea*, Balbis, not of Persoon.

This form, which has the flowers permanently of a pale yellow colour, was rather plentiful in Windsor Great Park in 1886. I have also seen it at Long Moor, Finchampstead, and Swinley. When the flowers are whitish it is the var. *pallida*, Brébisson, Fl. de la Normandie, 208.

The tube of *M. versicolor* is longer than that of *M. collina*.

A common form in North Scotland has many stems rising from the root; it is the var. *multicaulis*, Bosch, Fl. Batav. 160. The flowers in my Sutherland plant were all pale blue.

M. versicolor occurs in all the bordering counties.

LITHOSPERMUM, Linn. Gen. n. 166 (Tournefort, Inst. t. 55).

L. officinale, Linn. Sp. Pl. 132 (1753). *Gromwell*.

Top. Bot. 325. Syme, E. B. vii. 95, t. 1101. Nyman, 518. Fl. Oxf. 202-3. Native. Sylvestral. Woods, hedges, bushy places, evincing a preference for a calcareous soil. Local. P. May-August.

First record. *L. officinale*, Dr. Noehden, *Mavor's Agr. Berks*, 1809.

1. **Isis.** Carswell, *Miss M. Niven*. Buckland. Appleton. Wytham.
2. **Ock.** Between South and Ferry Hinksey, *Baxter*, in *Walk. Fl.* Near Childswell Farm, *Whitwell*. Marcham, *Walker*. Under the hedge in Lower Farm Close, Blewbury. By the ditch in West Hagbourn Meadow, *Lousley in Russell's Cat.* 1839. Tubney. Besilsleigh. Cothill. Bagley Wood, on the west side of the Abingdon Road. Wittenham Wood. Uffington. Near Radley. Frilford.

3. **Pang.** Streatley, *Pamplin*. Unwell Wood.

4. **Kennet.** Aldermaston. Between Hungerford and Riever Wood.

5. **Loddon.** Bisham Wood, *Mill*. Park Place, *Stanton*.

L. officinale is found in all the bordering counties.

L. arvense, Linn. Sp. Pl. 132 (1753). *Corn Gromwell*.

L. arvense radice rubra, C. B. Pin. 258.

Top. Bot. 326. Syme, E. B. vii. 96, t. 1102. Nyman, 518. Fl. Oxf. 203. Native or colonist. Cornfields, especially on chalky or calcareous soil, but not restricted to them. A. March-July.

First record. *L. arvense*, Dr. Noehden, *Mavor's Agr. Berks*, 1809.

1. **Isis.** Eaton Hastings, *Bellamy*. Coleshill. Faringdon. Buckland. Longworth. Appleton. Cumnor. Wytham. Idstone. Ashbury.
2. **Ock.** Marcham, *Walker*. North Hinksey, *Whitwell*. Denchworth, *Wait*. Blewbury, *Lousley in Russell's Cat.* Stevenon. Hagborne. Aston Tirrel. Uffington. Radley. Frilford. Tubney. Pusey. Appleford. Wantage. Sparsholt. Boar's Hill.
3. **Pang.** Streatley, *Pamplin*. Bradfield, *Jenkinson*. Tilehurst, *Tufnail*. King Standing Hill. Compton. Upton. Aldworth.

Frilsham. Yattendon. Sulham. Basildon. Bucklebury. Tidmarsh.

4. Kennet. Wickham, *Mrs. Batson*. Newbury, *Weaver*. Hungerford. Lambourn. Shefford. West Halsey. Catmore. Theale. Padworth. Inkpen. Kintbury.

5. Loddon. Cornfields near Marlow, not common, *Mill*. Well. Coll. List. Cookham. Bisham. Wargrave. Twyford.

L. arvense is found in all the bordering counties.

ECHIUM, Linn. Gen. n. 175 (Tournefort, Inst. t. 54).

E. vulgare, Linn. Sp. Pl. 139 (1753). *Viper's Bugloss*.

Top. Bot. 330. Syme, E. B. vii. 88, t. 1095. Nyman, 514. Fl. Oxf. 202. Native. Glareal. Heaths, dry sandy fields, walls, calcareous pastures.

Local. A. or B. April–September.

First record. *Echium flore albo*, neere Oxford, [How's] *Phyt. Brit.* 1650.

1. Isis. Carswell, *Miss M. Niven*. Wytham, abundant. Pusey.

2. Oak. By the roadside about Blewbury and other villages, particularly on a road called Bezel Way, leading from Sheen Croft to Aston, *Lousley in Russell's Cat.* Marcham, *Walker*. Letcombe, *Sir W. Herschel*. Radley Wood. Boar's Hill. Cothill. Tubney. Frilford. Besilsleigh. Quarries near Cherbury Camp, abundant. Letcombe, near the Ridgeway. Cole's Pit.

3. Pang. Streatley, *Pamplin*. Tilehurst. Pangbourn. Tidmarsh. Curridge. Sulham. Near Reading. Frilsham.

4. Kennet. Fields near Donnington, *Bunny*, in *Russell's Cat.* 1839. Wickham. Lambourn, *Mrs. Batson*. Winterbourn, *Weaver*. Welford, *Osmond*. Theale. Padworth. Mortimer. Kintbury. Englefield. Brimpton. Wasing.

5. Loddon. Sonning, *Rudge*, 1800, in *Herb. Brit. Mus.* Near Cookham Bridge very fine, and elsewhere, *Mill*. Near Wellington College, *Penny*. Between Henley and Pinkney's Green, *Stanton*. Shinfield, *Tufnail*. Wokingham, *Craucley*. Wargrave, *Melville*. Ambarrow. Ascot. Finchampstead. Wargrave. Windsor Park. Very rarely the flowers are white (*f. alba*), as at Besilsleigh.

Echium is found in all the bordering counties.

***LAPPULA ECHINATA**, Gilib. Fl. Lituan. i. 25 (1781). *Echinosperrum Lappula*, Lehmann, *Asper*. 121 (1818). *Lappula Myosotis*, Moench, *Meth.* 416 (1794). *Myosotis Lappula*, Linn. Sp. Pl. 131 (1753).

(Comp. Cyb. Br. 548. Syme, E. B. vii. 121. Reich. Ic. Fl. Germ. et Helv. xviii. t. 1329. Nyman, 523. Fl. Oxf. 206.

Casual. By the railway at Didcot and Pangbourn; Mr. Weaver has found it in a similar situation at Newbury.

****OMPHALODES VERNA**, Moench. *Meth.* 420 (1794).

Cynoglossum omphaloides, Linn. Sp. Pl. 135 (1753). *C. Omphalodes*, Linn. Syst. ed. 10, 914.

(Comp. Cyb. Br. 548. Reichb. Ic. Fl. Germ. et Helv. xviii. t. 1326. Nyman, 522. Allen. In the shrubbery of Buscot Park.

CONVOLVULACEAE, Vent. Tabl. ii. 394 (1799).

VOLVULUS, Medic. in Staatsw. Vorles. Churpf. Phys. Oek. Ges. i. (1791) 202.

Calystegia, R. Br. Prod. Nov. Holl. 483 (1810).

V. sepium, Medic. Phil. Bot. ii. 42. *Great Bindweed*.

Calystegia sepium, R. Br. l. c. *Convolvulus sepium*, Linn. Sp. Pl. 152 (1753).

Top. Bot. 281. Syme, E. B. vi. 86, t. 924. Nyman, 504. Fl. Oxf. 198.

Native. Septal. Hedges and thickets on damp soil. Not uncommon and widely distributed. Absent from a few parishes on the higher chalk downs, and local in the heathy tracts, from the uncultivated portions of which it is absent. P. June–October.

First record. The pale pink variety [var. *roseus* (DC. Prod. ix. 433, under *Calystegia*)] grows plentifully by the turnpike road near the Manor House at Tidmarsh, Dr. Beeke in lit. 1799. Only the white-flowered form is there now. Published as *Convolvulus sepium* in Mavor's *Agr. Berks*, 1809, and by Mr. G. G. Mill in *Phyt. i.* 990, 1848. *Volvulus sepium* occurs in all the bordering counties.

CONVOLVULUS, Linn. Gen. n. 198 (Tournefort, Inst. t. 77).

C. arvensis, Linn. Sp. Pl. 153 (1753). *Bindweed*.

C. minor arvensis, C. B. Pin. 294. *Smilax laevis minor*, Gerard, 712.

Top. Bot. 281. Syme, E. B. vi. 85, t. 923. Nyman, 506. Fl. Oxf. 198.

Native. Agrestal. Cornfields, cultivated ground, waste places, roadsides, railway banks, &c. Abundant and generally distributed. P. June–October.

First record. Near Henley, *Convolvulus flore albo parvo in 5 vel 6 lacinias profunde dissecto*, Mr. Stonestreet in Herb. Dubois at Oxford, about 1690.

Published as *C. arvensis* in Mavor's *Agr. Berks*, 1809, and in Russell's *Cat.* 1839.

The shape of the leaves varies considerably; *f. angustifolia* is a narrow-leaved form with the point of the auricles projecting towards the stem, but all gradations between this and the broad-leaved form (*f. latifolia*) with auricles obsolete or patent may be seen. The leaves vary from being nearly glabrous to var. *hirtus*, Koch, Syn. Fl. Germ. 494 (1837), and the colour of the flowers from white to deep rose-pink. The Bindweed delights in sunny roadsides and exposed margins of cornfields.

C. arvensis occurs plentifully in all the bordering counties.

CUSCUTA, Linn. Gen. n. 156 (Tournefort, Inst. t. 422).

****C. VULGARIS**, Presl, J. & C. Fl. Čech. 56 (1819).

C. Epilinum, Weihe, ap. Arch. Apothek. viii. (1824) 54. *C. densiflora*, Soyer —Will. in Mém. Soc. Linn. Par. i. (1822) 26 (not of Hooker, fl. Fl. N. Z.). *Epilinum*, Gerard, 462.

Frilsham. Yattendon. Sulham. Bauldon. Bucklebury. Tidmarsh.

4. **Kennet.** Wickham, *Mrs. Bateman*. Newbury, *Weaver*. Hungerford. Lambourn. Shefford. West Hales. Catmore. Theale. Padworth. Inkpen. Kintbury.

5. **Lodden.** Cornfields near Marlow, not common, *Mill*. Well. Coll. List. Cookham. Bisham. Wargrave. Twyford.

L. ovense is found in all the bordering counties.

ECHIUUM, Linn. Gen. n. 175 (Tournesfort, Inst. t. 54).

E. vulgare, Linn. Sp. Pl. 130 (1753). *Piquet's English*.

Top. Bot. 330. Syme, E. B. vii. 88, t. 1095. Nyman, 514. Fl. Oxf. 202. Native. Glareol. Heaths, dry sandy fields, walls, calcareous pastures. Local. A. or B. April-September.

First record. *Kochium, Aene alba*, near Oxford, [How's] *Phyt. Brit.* 1650.

1. **Isle.** Carswell, *Miss M. Nixon*. Wytham, abundant. *Pusey*.

2. **Ook.** By the roadside about Blewbury and other villages, particularly on a road called Bezel Way, leading from Sheen Croft to Aston, *Lansley in Russell's Cat.* Marcham, *Walker*. Letcombe, *Sir W. Herchel*. Badley Wood. Boar's Hill. Cothill. Tubney. Frilford. Beaulleigh. Quarries near Cherbury Camp, abundant. Letcombe, near the Ridgeway. *Cole's Pit*.

3. **Pang.** Streetley, *Amptin*. Tilehurst. Pangbourn. Tidmarsh. Curridge. Sulham. Near Reading. Frilsham.

4. **Kennet.** Fields near Donnington, *Hunty*, in *Russell's Cat.* 1830. Wickham. Lambourn, *Mrs. Bateman*. Winterbourn, *Weaver*. Welford, *Osmond*. Theale. Padworth. Mortimer. Kintbury. Englefield. Brimpton. Wasing.

5. **Lodden.** Sonning, *Rudge*, 1800, in *Herb. Brit. Mus.* Near Cookham Bridge very fine, and elsewhere, *Mill*. Near Wellington College, *Young*. Between Henley and Pinkney's Green, *Shanley*. Shinfield, *TySmith*. Wokingham, *Osmond*. Wargrave, *Mobill*. Ambarrow. Ascot. Finchampstead. Wargrave. Windsor Park.

Very rarely the flowers are white (*E. alba*), as at Beaulleigh.

Kochium is found in all the bordering counties.

**LAPULA BORINATA*, Gilib. Fl. Lituan. l. 25 (1781). *Kochiumpermum Lappula*, Lehmann, *Asper*, 121 (1818). *Lappula Myrsotis*, Moench, *Meth.* 416 (1794). *Myrsotis Lappula*, Linn. Sp. Pl. 131 (1753).

Comp. Cyl. Br. 548. Syme, E. B. vii. 121. *Reich. Ic. Fl. Germ. et Helv.* xviii. t. 1309. Nyman, 523. Fl. Oxf. 205.

Occul. By the railway at Didcot and Pangbourn: Mr. Weaver has found it in a similar situation at Newbury.

***OMPHALODON VERNA*, Moench, *Meth.* 420 (1794).

Omphalum omphalodes, Linn. Sp. Pl. 135 (1753). *O. Omphalodes*, Linn. *Syst. ed.* ix. 914.

Comp. Cyl. Br. 548. *Reich. Ic. Fl. Germ. et Helv.* xviii. t. 1320. Nyman, 522. Allen. In the shrubbery of Huscot Park.

CONVOLVULACEAE, Ventr. Tabl. II. 394. 1799.

VOLVULUS, Moench in Steudner, *Verboe. Champ. Pays Oak. Ger.*
1797. 202.

Volvulus, R. Br. *Pend. New Holl.* (44.) 130.

V. caespitum, Moench *Phil. Bot.* 1. 12. *Caesp. Rouben.*

Volvulus caespitum, R. Br. *Icon. Florae Indicae* (vol. III. p. 12.) 130.
Vol. Bot. 28. Synon. *R. Br.* 1. 36. 1799. Venten. 301. *Fl. Ind. 28.*
Climax. Septil. Hedges and thickets on damp soil. Not uncommon
and easily distinguished. Grows from a few perches on the
surface, here there, and local in the bushy places, from the
uninterrupted portions of which it is absent. *P. June October*
First found. The pale pink solitary flowers are in the *Pend. 1. 12.*
under *Volvulus* grows plentifully by the margin and near the
Moor House at Fulmarth. *See Bot. 1. 36. 1799.* The white
flowers from a thick sward. Published in *Icones Indicae* in
1800. *See Bot. 1. 36. 1799.* and by Mr. G. G. Miller in *Bot. 1. 36. 1799.* and
Icones Indicae in all the following countries.

CONVOLVULUS, Linn. *Gen. n. 28.* *Tournefort. Inst. 1.*

C. verticillata, Linn. *Bot. Pl. 1. 1799.* *Rouben.*

Convolvulus verticillata, R. Br. *Icon. Florae Indicae* (vol. III. p. 12.) 130.
Vol. Bot. 28. Synon. *R. Br.* 1. 36. 1799. Venten. 301. *Fl. Ind. 28.*
Climax. Agrostis. Lowlands, cultivated ground, waste places and
old swards, here there. Abundant and generally distributed
P. June October
First found. Near Haverly. *See Bot. 1. 36. 1799.* and by Mr. G. G. Miller in
Bot. 1. 36. 1799. and by Mr. G. G. Miller in *Bot. 1. 36. 1799.* and
Icones Indicae in all the following countries.

The shape of the leaves varies considerably. *C. verticillata* is a
smaller plant than *C. caespitum*, the point of the nucleus projecting towards
the stem and the lobes are more or less and the undulating form
C. verticillata is more or less and the lobes are more or less. The leaves
are from a few inches long to one foot long. *See Bot. 1. 36. 1799.*
Vol. Bot. 28. and by Mr. G. G. Miller in *Bot. 1. 36. 1799.* and
Icones Indicae in all the following countries.

Convolvulus verticillata is in all the following countries.

CITRIVULUS, Linn. *Gen. n. 28.* *Tournefort. Inst. 1.*

C. citriformis, Linn. *Bot. Pl. 1. 1799.* *Rouben.*

Citrivulus citriformis, R. Br. *Icon. Florae Indicae* (vol. III. p. 12.) 130.
Vol. Bot. 28. Synon. *R. Br.* 1. 36. 1799. Venten. 301. *Fl. Ind. 28.*
See Bot. 1. 36. 1799. and by Mr. G. G. Miller in *Bot. 1. 36. 1799.* and
Icones Indicae in all the following countries.

Comp. Cyb. Br. 538. Syme, E. B. vi. 89, t. 926. Nyman, 507. Fl. Oxf. 198.
Casual. Parasitic on Flax, &c. Very rare. June.

2. **Ock.** A plant or two occurred on Flax and other casuals on waste ground near Didcot Station in 1895.

It has been recorded for Oxfordshire and Wiltshire.

C. europaea, Linn. Sp. Pl. 124 (1753). *Great Dodder, Hell-weed.*

C. major, C. B. Pin. 219, and of DC. Prod. ix. 452.

Top. Bot. 282. Syme, E. B. vi. 90, t. 927. Nyman, 507. Fl. Oxf. 199.

Native. Septal. Hedges and bushes, and in damp thickets near streams, and on herbage along the banks of rivers. Local and rather rare, except in the extreme south-eastern part of the county. A. July-September.

First record. *C. europaea*, near Eton, Mr. Gotobed in *Bot. Guide*, 1805, with some slight doubt as to the locality being in Berkshire.

2. **Ock.** Near Abingdon, *Bicheno in Mavor's Agr. Berks*, 1809. *Sm. Eng. Fl.* ii. 25. Between South Hinksey and Childswell Farm, *Baxter*. Road to Hinksey, *Walk. Fl.* 1833. In a hedge by the footpath leading from Oxford to South Hinksey, on the black-thorn, *Mrs. E. Jenner*, 1833, in *Baxt. Phaen. Bot.* n. 18, 1834. Between Botley and Ferry Hinksey, *Boswell*. Appears to be now extinct about Oxford.

3. **Pang.** By the river near Goring.

4. **Kennet.** Near Newbury, *Bicheno in Baxt. l.c.* Wickham, *Mrs. Batson*.

5. **Loddon.** Near Eton, *Gotobed, l.c.* [Probably this was on the Buckinghamshire side of the river, where it is still plentiful.] On the western side of Bulmarsh Heath, *Rudge in Bot. Guide*. [Probably *C. Epithymum*.] Hedges about Clewer, *Gotobed in Mavor's Agr. Berks*, 1809. Near Caesar's Camp, *Delamotte in Baxt. l.c.* Maidenhead, on lucerne, *Lond. Fl.* Near Taplewon, the footway to Maidenhead, *Winch, add. in New Bot. Guide*. Foot of Winter Hill, *Britt. Contr.* Near Shiplake, on both sides of the river, *Tufnail*. Near Park Place boat-house on nettles and sedges, and almost smothering the hedge by the roadside nearly opposite the cottage at Hemerton chalk-pit on the Wargrave road, *Stanton*. Windsor, *Everett*. Old Windsor.

Var. **NEFRENS**, Fries, Exs. Herb. Norm. n. 17 = *C. Schkuhriana*, L. Pfeiff. in *Bot. Zeit.* iii. (1845) 673, occurred as a casual on *Medicago sativa*, and other casuals at Didcot in 1895.

Cuscuta europaea has been recorded for all the bordering counties.

C. Epithymum, Murray, Syst. Veg. ed. 13, 140. *Lesser Dodder.*

C. minor, C. B. Pin. and S. F. Gray & DC. Prod. ix. 453, not Gilibert.

C. europaea, Sm. E. B. t. 55, not of Linn. *Epithymum*, Matth.

Top. Bot. 283. Syme, E. B. vi. 91, t. 928. Nyman, 507. Fl. Oxf. 199.

Native. Ericetal. Parasitical on *Ulex*, *Calluna*, and *Erica*. Dry heaths preferring sunny situations. Local. A. June-October.

First record. *C. epithymum*, Mr. Bicheno. Cornfields and heaths, not uncommon, *Mavor's Agr. Berks*, 1809. [The *C. europaea* of Mr. Rudge in *Bot. Guide*, 1805, was probably this species.]

2. Ock. Roadside, near Charlton (Wantage), *Wait*. [I have not seen specimens.]

3. Pang. Tilehurst Common, *Walk. Fl.* 1833. Cold Ash Common, *W. M. Rogers*. Bucklebury Common, *Tufnail*. Sulham.

4. Kennet. Greenham Common. Newtown Common, *Bunny in Russell's Cat*. Crookham Common, *Stubbs in Britt. Contr.* Wickham, *Mrs. Batson*. Mortimer, the author in *Rep. of Bot. Exch. Club*, 1888. Snelsmore. Burghfield.

5. Loddon. '*C. europaea*,' on the western side of Bulmarsh Heath, *Rudge, l. c.* Windsor Forest, *Moore in Britt. Contr.* Wellington College, *Penny*. Early Common, *Tufnail*. Wokingham, *Ed. Forster in Herb. Brit. Mus.* Wellington Road, from Wokingham, *Crawley*. Ascot, *Riddelsdell*, on *Ulex*. Ambarrow. Risely. Bracknell.

C. Epithymum is recorded for all the bordering counties except E. Gloucestershire.

**C. Trifolii*, Bab. & Gibs. in *Phyt. i.* (1843) 467. *Clover Dodder*.

C. Epithymum, var. *Trifolii*. *C. minor*, var. *trifolii*, DC. *Prod.* ix. 453.

Comp. Cyb. Br. 251. Top. Bot. 283. Syme, E. B. vi. 92, t. 929. Nyman, 507. *Fl. Oxf.* 199.

Colonist. Parasitic on clover and beans. Sporadic. Rather frequent. A. July-September.

First record. The '*C. epithymum*' from cornfields of Mr. Bicheno in *Mavor's Agr. Berks*, 1809, is probably intended for this plant.

1. Isis. Near Inglesham. Longworth. Cumnor.

2. Ock. Near Ferry Hinksey, *Boswell*. Marcham, *Walker*. Boar's Hill, *W. W. Fisher*. Radley. Wittenham. Moreton. Sutton Courtney.

3. Pang. Unwell Wood, border, *Lawson*. Sulham, *Tufnail*. Moulshford. Tidmarsh. Aldworth.

4. Kennet. Far too abundant [about Elcot], *Reeks in Britt. Contr.* Theale. Welford. Inkpen.

5. Loddon. Winter Hill. Old Windsor, 1847, *Herb. Moore in Britt. Contr.* Wargrave and Remenham, *Stanton*. Shinfield. Swallowfield, *Tufnail*. Bray. Sonning. Twyford. Waltham.

Perhaps this is only a variety of *C. Epithymum*. Mr. Tufnail thinks it is a decreasing species in the county, owing to the greater care now bestowed on the cleaning of clover seed.

C. Trifolii is recorded for all the bordering counties except E. Gloucestershire, but I have seen it in that county near Lechlade.

SOLANACEAE, Pers. Syn. i. 214 (1805).

SOLANUM, Linn. Gen. n. 224 (Tournefort, Inst. t. 62).

S. Dulcamara, Linn. Sp. Pl. 185 (1753). *Bitter Sweet, Woody Nightshade.*

Dulcamara, Dodoens. *Amara Dulcis*, Turner, Herball, pt. iii. 2.

Top. Bot. 285. Syme, E. B. vi. 95, t. 930. Nyman, 525. Fl. Oxf. 208.

Native. Septal. Hedges in damp situations, by rivers and brooks, &c. Abundant and widely distributed. Climbing Shrub. May-August.

First record. *Solanum lignosum flore albo*. In a lane going from Tubney to Newbridge, Mr. Stonehouse in [How's] *Phyt. Brit.* 1650. *S. dulcamara*, Mavor's *Agr. Berks*, 1809.

Var. *alba*, the white-flowered form, has also been recorded by the Rev. W. T. Bree, in *Purt. Midl. Fl.*, and by Ruth Baxter from between Oxford and South Hinksey in *Baxt. Phaen. Bot.* n. 110 (1834). It is not uncommon; I have seen it near Jenny Bunting's Parlour, on Boar's Hill, at Tubney, at Faringdon, near Wallingford, Aldermaston, Old Windsor, &c.

A pubescent form approaching the var. *tomentosum* of Koch, Syn. Fl. Germ. 508 (1837), has been seen on chalk rubble near Reading.

S. Dulcamara occurs in all the bordering counties.

S. nigrum, Linn. Sp. Pl. 186 (1753). *Common Nightshade.*

S. vulgare, Park. 346. *S. Hortense*, Gerard, 268.

Top. Bot. 284. Syme, E. B. vi. 97, t. 931. Nyman, 526. Fl. Oxf. 208.

Colonist. Agrestal. Cultivated ground, especially in rich garden-ground or manured soil. Local. Absent from a considerable area of the county, and chiefly occurring in the vicinity of the larger towns, and more frequent in the south of the county. A. June-October.

First record. *S. nigrum*, Mavor's *Agr. Berks*, 1809.

1. **Isis**. Longworth.

2. **Ock**. Near Wallingford, but it is a rare plant in this county, *Lousley in Russell's Cat.* Abingdon Abbey, *Whitwell*. Marcham. *Walker*. Grandpont. Bagley Wood. Boar's Hill.

3. **Pang**. Streatley, *Pamplin*. Tidmarsh.

4. **Kennet**. Near Thatcham Farm, *Palmer*, in *Russell's Cat.* Mortimer, *Tufnail*. Extremely common in cultivated ground in and near Reading, *Tufnail*. Southcote. Newbury.

5. **Loddon**. Common about Marlow, *Mill*. Wokingham, *Trimen*. Wellington College, *Penny*. Frequent about Park Place, *Stanton*. Arborfield. Finchampstead. Risely. Sandhurst. Blackwater. Sunningdale. Ambarrow. Ascot. Windsor Park. Knowl

Hill. Frogmore. Bisham. Cookham. Maidenhead. Swallowfield. Near Reading. Sonning.

Var. *LUTEO-VIRESCENS* (Gmel. Fl. Bad. iv. 177, as a species) = *chlorocarpum*, Spenn. Fl. Frib. 1074. On rubbish at Oxford and at Abingdon.

The outline of the leaves of *S. nigrum* varies considerably.

S. nigrum is reported from all the bordering counties.

HYOSCYAMUS, Linn. Gen. n. 219 (Tournefort, Inst. t. 42).

H. niger, Linn. Sp. Pl. 179 (1753), and of Gerard, 283. *Henbane*.

Top. Bot. 283. Syme, E. B. vi. 106, t. 936. Nyman, 524. Fl. Oxf. 207. Native. Viatical. Roadsides, waste ground, bare places in woods and stone-pits. Rare and sporadic. B. May–August.

First record. *H. niger*, Dr. Noehden, in *Mavor's Agr. Berks*, 1809.

1. *Isis*. Carswell, *Miss M. Niven*. Cumnor. Open places in Wytham Wood.

2. *Ock*. South Hinksey, near the Church, *Baxter*, 1827. *Marcham*, *Walker*. Near Bagley Wood, *Dyer*. Cow Lane at West Hagbourn, *Lousley* in *Russell's Cat*. Abingdon on waste ground. Fine specimens by the railway near Didcot. Grandpont. Cumnor. Ferry Hinksey (a casual).

3. *Pang*. On Burnt Hill Common by a pond. In the street at Compton, *Lousley*, l.c. Streatley, *Holland*. Ilsley, *Hewett's Hist*. On Streatley Warren at 400 feet. Near Compton.

4. *Kennet*. Hampstead [Marshall] Park. Midgham Marsh, *Bunny*, in *Russell's Cat*. Elcot, *Reeks* in *Britt. Contr*. Welford Park, *Osmond*. Newbury, *Jackson*. Greenham Mill, *Weaver*. Near Wren's Farm, Shinfield. Reading Sewage Farm, *Tufnail*.

5. *Loddon*. In the common pasture under Cookham Down. Pinkney's Heath, *Mill*. Finchampstead, *Penny*. Park Place. Knowl Hill, *Stanton*. Windsor, *Everett*. Shiplake. Stubbings's Heath. Near Wellington College Station. Cockpoll Green, a solitary specimen.

H. niger is found in all the bordering counties.

DATURA, Linn. Gen. n. 218 (*Stramonium*, Tournefort, Inst. t. 43).

***D. STRAMONIUM**, Linn. Sp. Pl. 179 (1753). *Thorn Apple*.

Stramonium fructu spinoso oblongo, flore albo, Tournefort, 119.

Comp. Cyb. Br. 538. Syme, E. B. vi. 103, t. 935. Nyman, 523. Fl. Oxf. 206. Colonist. Waste ground and rich garden soil. Local and sporadic. A. June–October.

First recorded by Mr. Fardon in *Bot. Guide*, 1805, and in *Mavor's Agr. Berks*, 1809.

1. *Isis*. Wytham.

2. *Ock*. Denchworth, *Wait*. Grandpont. Didcot. Abingdon.

3. *Pang*. In a meadow near Reading, *Fardon* in *Bot. Guide*. Pangbourn. Tilehurst.

4. Kennet. Near Reading, *Fardon, l. c.* Reading Sewage Farm, *Tufnail*.
5. Loddon. Cookham, *J. G. Everett*. By the railway between Shiplake and Twyford. Windsor. Frogmore, in garden ground.

Var. *TATULA* (Linn. Sp. Pl. ed. 2, 256 (1762), as a species) = var. *chalybea*, Koch, Syn. Fl. Germ. 510 (1837). Differs from the preceding plant in having purplish stem and flowers. On waste ground at Grandpont.

D. Stramonium has been found in all the bordering counties, but I have no record for E. Gloucestershire.

ATROPA, Linn. Gen. n. 222 (*Belladonna*, Tournefort, Inst. t. 13).

A. Belladonna, Linn. Sp. Pl. 181 (1753). *Deadly Nightshade, Ducale*.

Top. Bot. 285. Syme, E. B. vi. 100, t. 934. Nyman, 524. Fl. Oxf. 207. Native. Sylvestral. Woods on the chalk or limestone. Local. P. June–August.

First record. *A. Belladonna*, Mr. Bicheno in *Mavor's Agr. Berks*, 1809.

1. Isis. Wytham Park and Woods, very fine specimens.
3. Pang. In Ilsley Churchyard, *Bicheno, l. c.* Unhill and Hampstead Wood, *Hewett's Hist.* Tilehurst Common and Englefield, *Walk. Fl.* Between Pangbourn and Streatley, *Herb. Brit. Mus.* In many places in the hill country. In Beech Wood, &c. Hampstead Norris. In Westbrook Wood, in Unhill Wood, *Lousley in Russell's Cat.* Ashampstead. Basildon.
4. Kennet. Very luxuriant and plentiful about the ruins of Hampstead Marshall, *Bicheno, l. c.* Welford Park, *Weaver*.
5. Loddon. Windsor Great Park, *Stephenson & Churchill's Medical Botany*. Near Bisham Wood, *Mill*. Culham Court.

Atropa Belladonna is recorded from all the bordering counties.

****LYCOPERSICON ESCULENTUM**, Miller, Gard. Dict. ed. 8 (1768). *The Tomato*.

Occurs occasionally on waste ground, manure heaps, or sewage refuse, but it is not permanent. I have seen it at Grandpont, at Windsor, Mortimer, and Maidenhead.

****LYCIUM BARBARUM**, Linn. Sp. Pl. 277 (1762). *Tea Plant*.

L. vulgare, Dunn. in DC. Prod. xiii. 509. *L. barbarum*, var. *vulgare*.

Cyb. Br. ii. 187. Syme, E. B. vi. 98, t. 933. Nyman, 524. Fl. Oxf. 207.

Alien. Hedges and fences in and about villages. Scarcely naturalized. Shrub. June–August.

It occurs as a garden escape at Appleton, Uffington, Wootton, Reading (by the railway), Newbury, Twyford, Ashley Hill, Kingston Bagpuze, Denchworth, Kennington, Tilehurst, &c., and under similar circumstances is found in all the bordering counties.

RHINANTHACEAE, J. St. Hil. Exp. Fam. i. 227 (1805).

SCROPHULARIACEAE, Lind. Nat. Syst. ed. 2, 288 (1836).

VERBASCUM, Linn. Gen. n. 217 (Tournefort, Inst. t. 61).

V. Thapsus, Linn. Sp. Pl. 177 (1753). *Aaron's Rod, Great Mullein*.

Top. Bot. 286. Syme, E. B. vi. 110, t. 937. Nyman, 527. Fl. Oxf. 209.

Native. Viatical. Roadsides, banks, hilly slopes, open woods, &c.

Local, but widely scattered through the county. B. June-September.

First record. *Verbascum foemina flore luteo magno*, Bauhin. Found by Redding, [How's] *Phyt. Brit.* 1650. (This record in Ashmole's copy of the *Phytologia* has the initials of J. Watlington appended.) Sonning, Mr. S. Rudge in *Herb. Brit. Mus.* 1800.

1. **Isis.** Carswell, Miss M. Niven. Wytham. Appleton. Cumnor.
2. **Ock.** Bagley, *Garnsey*. Marcham, *Walker*. Denchworth, casual, Wait. Tubney. Boar's Hill. Cothill. Shippon. Besilsleigh. Kingston Bagpuze. Didecot. Uffington. Near Wallingford.
3. **Pang.** About Hampstead Norris, but not common, *Lousley* in *Newbury Cat.* Streatley, *Pamplin*. Common about Beedon, W. M. Rogers. Ashampstead. Pangbourn. Basildon. Moulshford. Chalk-pit near Englefield. Tilehurst. Abundant and luxuriant between Pangbourn and Streatley by the railway. Hermitage. Ashridge Wood. Unwell Wood. Yattendon. Frilsham. Aldworth. Compton. Hampstead Norris. Bucklebury. Standford Dingley. Bradfield.
4. **Kennet.** Mortimer, *Tufnail*. Wickham, Mrs. Batson. Burghfield. Shefford. Lambourn. Snelsmore. Newbury. Little Common, Hungerford. Kintbury. Theale. Wasing. Aldermaston. Bucklebury. Midgham. Hampstead Marshall.
5. **Loddon.** By Reading, *Phyt. Brit.* Sonning, *Rudge*. Frequent about Park Place and Rose Hill, *Stanton*. Wokingham, E. Forster in *Brit. Mus. Herb.* Chalk-pit, Wargrave. On chalk rubble, near Reading. Bisham. Barkham. Farley Hill. Finchampstead. Maidenhead. Bagshot. Coleman's Moor. Bearwood. Wokingham. Loddon Bridge. Cookham. Stubbing's Heath. Bray. Waltham.

V. Thapsus occurs in all the bordering counties.

V. nigrum, Linn. Sp. Pl. 178 (1753). *Black Mullein*.

V. nigrum vulgare, Park. 61.

Top. Bot. 287. Syme, E. B. vi. 114, t. 940. Nyman, 530. Fl. Oxf. 209.

Native. Viatical. Sunny waysides, borders of fields, quarries, &c.

Local, evincing a partiality for limestone, chalk, or sandy soil containing calcareous matter. B. or P. June-August.

First record. Sonning, Mr. S. Rudge in *Herb. Brit. Mus.* 1800. *Verbascum nigrum*, Dr. Noehden, *Mavor's Agr. Berks*, 1809.

1. **Isis.** Roadside between Besilsleigh and Appleton, *Baxter* in *Walk. Fl.* About Appleton, abundant, Miss Hoskins, *Baxt. Phaen. Bot.* n. 85.
2. **Ock.** Marcham, *Walker*. Wootton. Dry Sandford. Cothill. Roadside by Tubney Wood. Sunningwell. Between Tubney and Kingston Bagpuze.

3. **Pang.** Streatley, *Pamplin*. Hampstead Norris, in one spot, *W. M. Rogers*. Bradfield, *Jenkinson*. Frilsham. Moultsford. Pangbourn. Tilehurst.
4. **Kennet.** Woodhay, *Weaver*. Mortimer, *Tufnail*. Shefford. Padworth. Brimpton.
5. **Loddon.** Common about Marlow, *Mill*. In Park Place, common and not eaten by rabbits, *Stanton*. Below the Ridges, *Penny*. Near Henley, *Baxter*. Sonning, *Rudge*. Near Coleman's Moor. Cockpoll Green. Twyford. Early. Cookham. Bisham. Wargrave. Shiplake.

I have not yet been able to find this plant hybridizing with *V. Thapsus* in Berkshire.

V. nigrum occurs in all the bordering counties.

***V. Lychnitis**, Linn. Sp. Pl. 177 (1753). *Hoary Mullein*.

Top. Bot. 287. Syme, E. B. vi. 113, t. 939. Nyman, 530. Fl. Oxf. 210. Denizen or casual. Viatical. Waysides, walls. Very rare. B. July-Aug. First record. Sonning Lane, *Mr. S. Rudge*, 1800, in *Herb. Brit. Mus.* Included by Mr. T. B. Flower in *Robertson's Env. of Reading*, 1843.

2. **Ock.** Naturalized on a wall in Sunningwell.

5. **Loddon.** Sonning Lane, *Rudge* (not there now). Roadside near Wargrave Hill, [*Melville*] in *Britt. Contr.*

Our plant has white flowers, and is the *V. album* of Miller, Gard. Dict. ed. 8 (1768).

V. Lychnitis is recorded for Bucks and Surrey only of the bordering counties.

***V. BLATTARIA**, Linn. Sp. Pl. 178 (1753). *Moth Mullein*.

Blattaria flore luteo, Park. 64.

Comp. Cyb. Br. 253. Syme, E. B. vi. 116, t. 942. Nyman, 528. Fl. Oxf. 210. Denizen or casual. Waysides, waste places. Very rare. B. May-Sept. First record. *Verbascum octavum*, Caes. *Blattaria Phoenicia*, Tab. *Flore purpureo*, Ger. Purple Moth Mullein near Oxford, Mr. Thomas in [*How's*] *Phyt. Brit.* 128, 1650. Also Binfield, Mr. Rudge in *Bot. Guide*, 1805, and *Herb. Brit. Mus.*

2. **Ock.** Near Betterton House, in a field, *Mrs. Haydon*, 1896. Bagley Wood, a relic of a former garden. Grandpont.
3. **Pang.** Chieveley, *Hewett's Hist.*
5. **Loddon.** One plant at New Lock, perhaps escaped from a garden, *Mill*. In a piece of newly-turned ground at Park Place Boat House, and in a clover field, Church Farm, Remenham, *Stanton*. Binfield, *Rudge*, 1800. Twyford, railway-side, the pale purple-flowered form, var. *glabrum*, Reichb. Fl. Germ. Exc. 380.

V. Blattaria is recorded for Surrey, Hants, and Wiltshire.

[**V. VIRGATUM**, Stokes in With. Bot. Arr. ed. 2, i. 227 (1787).

Syme, E. B. vi. 115, t. 941. Fl. Oxf. 210. Has been found as a casual plant in Oxfordshire and Hampshire.]

[Ambiguity. '*Blattaria flore albo flavescente nondum descripti*. Mullein with white and yellow flowers. In Chaucer's Copps near Reading,' *E. Ashmole and J. Watlington*, MS. in Ashmole's copy of [*How's*] *Phyt. Brit.* circa 1656.]

LINARIA, Miller, Gard. Dict. ed. 7 (1762) (Tournefort, Inst. t. 76).

L. Cymbalaria, Miller, Gard. Dict. ed. 8, n. 17 (1768). *Oxford Weed*,
Ivy-leaved Toad-flax.

Cymbalaria, Matth. *Antirrhinum Cymbalaria*, Linn. Sp. Pl. 612 (1753).
Comp. Cyb. Br. 541. Syme, E. B. vi. 133, t. 955. Nyman, 543. Baxt. 35.
Fl. Oxf. 216.

Denizen. Rupestral. Old walls, brickwork of canal-sides and river-locks, &c. Common and widely distributed. P. April–Nov.

First record. *Antirrhinum Cymbalaria*. On old walls about the shores of the Thames as well as at Oxford, E. B. n. 502, 1790. On the walls of Windsor Castle, Rev. Dr. Goodenough, Sm. Fl. Brit. 1800. On the ruins of Park Place, Dr. Noehden, Mavor's Agr. Berks, 1809.

L. Cymbalaria occurs plentifully in all the districts, and is still growing on the walls of Windsor Castle. It is an ornament to some of the river-locks. Occasionally the flowers are white with a yellow palate.

'From Oxford to Teddington we are continually meeting with the flowery festoons of this pretty plant wherever old stone work is found in proximity to the water,' *Hall's Book of the Thames*, 133.

L. Cymbalaria is found in all the bordering counties.

L. Cymbalaria is the plant whose structure and relations Linnaeus, during the interview he had with Dillenius in the Oxford Botanic Garden, explained in so clear a manner as to remove the prejudice against him, and to constrain Dillenius to admit that Linnaeus was not the man to bring Botany into confusion.

L. spuria, Miller, l. c., n. 15 (1768). *Fluellin*.

Elatine folio subrotundo, C. B. Pin. 252. *Antirrhinum spurium*, Linn.

Sp. Pl. 613. *Veronica foemina*, Matth. *V. foemina Fuchsii sive Elatine*, Gerard, 501.

Top. Bot. 295. Syme, E. B. vi. 135, t. 957. Nyman, 543. Fl. Oxf. 215. Native. Agrestal. Arable fields, chiefly on light soils. Local. A. June–December.

First record. The female veronica growes amongst corn almost everywhere, MS. note in *Lyte's Herbal*, 1660. (The accompanying description suggests that this plant is meant.) Definitely recorded from Merley in *Mr. Baxter's MS.* of 1812, and published by Mr. T. B. Flower in *Robertson's Env. of Reading*, 1843.

1. *Isis*. Merley, *Baxter*, 1812. Carswell, *Miss M. Niven*. Appleton. Cumnor.

2. *Ock*. Between Hen Wood and Ferry Hinksey. Boar's Hill, with a *peloria* form, *Sister Jane Frances*. Chilton, *Hewett's Hist. Marcham*, Walker. Between Kingston and Charney. Denchworth, *Wait*. Chawley. Near Cumnor Hurst. Radley. Pusey. Wantage. South Hinksey.

3. Pang. Streatley, Pamplin. Chesridge, Hewett's Hist. Tilehurst. Upper Basildon, Tufnail. Ashampstead. Sulham. Compton. Ilsley.
4. Kennet. Donnington, Weaver. Burghfield. Aldermaston. Mortimer. Ufton. Theale.
5. Loddon. Remenham. Park Place. Culham, &c., Stanton. Windsor, Bolton King. Near Hurley. Winkfield. Finchampstead.

A peloria form with four spurs to the flower was found at South Hinksey.

L. spuria occurs in all the bordering counties.

L. Elatine, Miller, l. c., n. 16. *Sharp-leaved Fluellin*.

Elatine altera, Gerard, 501. *Antirrhinum Elatine*, Linn. Sp. Pl. 612 (1753). Top. Bot. 296. Syme, E. B. vi. 134, t. 956. Nyman, 542. Fl. Oxf. 215. Native. Agrestal. Arable fields, chiefly on light soil. Local. A. June–December.

First record. *Antirrhinum elatine*, Mr. Bicheno. On the Wash Common, near Newbury, *Mavor's Agr. Berks*, 1809.

1. Isis. Merley, Baxter, 1812. Appleton. Cumnor.
2. Ock. Hinksey Hills, Baxter, in Fl. Oxf. Pusey, Boswell. Between Kingston and Charney, Wait. Radley. Denchworth. Ferry Hinksey.
3. Pang. Streatley, Pamplin. Sulham, Tufnail. Ashampstead.
4. Kennet. On the Wash Common, Bicheno. Donnington, Jackson. Weston, Osmond.
5. Loddon. Frequent at Park Place. Remenham. Hemerton. Culham, Stanton. Wargrave, Melvill, MS. Windsor, Bolton King. Wellington College, Penny. Winkfield. Finchampstead. Near Hurley.

While I have found *L. spuria* without *L. Elatine*, I have not found *L. Elatine* growing without *L. spuria*. I have been unable to find a hybrid of the two plants. Such an one is described by Brébisson in *Flore de la Normandie*, 220.

L. Elatina, so misspelt by Miller, occurs in all the bordering counties.

L. repens, Miller, l. c., n. 6 (1768). *Creeping Toad-flax*.

L. decumbens, Moench, Meth. 523 (1794). *L. striata*, DC. Fl. Fr. iii. 586.

L. monspessulana, Miller, l. c. *Antirrhinum repens*, Linn. Sp. Pl. 614. *A. monspessulanum*, Linn. Sp. Pl. 616.

Top. Bot. 296. Syme, E. B. vi. 139, t. 961. Nyman, 539. Fl. Oxf. 213–14. Native. Viatical. Waysides, railway banks, cultivated fields, walls, dry stony ground. Locally abundant, evincing a decided preference for dry chalky soil. P. June–October.

First record. *Linaria coerulea foliis brevioribus et angustioribus*. Near

Henley, J. Sherard, in *Ray's Syn. (Dillenius)*, *282, 1724. See also *Dillenius' Hort. Eltham*. 198, t. 163, where f. 197 is said to be drawn from a Henley plant.

2. **Ock.** A few plants, the seeds of which have been conveyed by passing trains from Didcot, &c., have been found by the Great Western Railway, near the Oxford Gas-works. Plentiful on chalk rubble by the railway near Didcot, and also on the embankment made for the new loopline there. Also on the chalk embankment between Didcot and Upton, and between Didcot and Cholsey. Culham railway-side.
3. **Pang.** Near Basildon, *E. Forster, Jun., in Bot. Guide*, 1805. Chalk between Streatley and Basildon, *Bicheno, in Winch, add.* Lowbury, *Hewett's Hist.* Shooter's Hill, Pangbourn. In a clay-pit between Theale and Purley, *Walk. Fl. Streatley, Phyt.* vi. 238, n. s. King Standing Hill. Tilehurst. Abundant on chalk rubble between Pangbourn and Tilehurst, and between Tilehurst and Reading. Sulham. Unwell, wood-side. Moultsford. Between Moultsford and Wallingford abundantly. Lowbury. Ashampstead. Compton. East Ilsley Downs.
4. **Kennet.** Newbury, by the side of the railway.
5. **Loddon.** In a Field on the left Hand the Road from London, on a steep Bank a little before you come to the town [Henley], plentifully, *Sherard, l. c.* On the chalk hill going down to Henley plentifully, *Sm. Fl. Brit.* 659, 1800. This scarce plant, *A. monspessulanum*, grows plentifully on Henley Hill, in the parish of Remenham, *Mavor's Agr. Berks*, 1809, and *Lyson's Magna Brit.* 1806. Railway between Wargrave and Henley, *Melwill. Henley, Sir J. E. Smith, in Herb. Linn. Soc.* Henley, *Dr. Richardson* of Bierly about 1726, in *Herb. Dillenius* at Oxford. Park Place. Wargrave, *Britt. Contr.* Starve-all Farm, Crowthorn, Penny. Near Marsh Mill. Wargrave Road. Near Hemerton, Stanton. Windsor, *Everett.* Between Maidenhead and Twyford. Chalk ballast near Reading. Near Bray.

The colour of the flowers is said in Hooker's *Students' Flora* to be violet, in Babington's *Man. Brit. Bot.*, white with blue veins, and in Syme's *English Botany*, white with purple veins, the palate with a yellow spot, but the colouring of the plate does not bear out the description. The colour is indeed very variable: more frequently it is as Babington describes it, but forms have been noticed with dark purple flowers without striations; with violet blue flowers on which striations can be seen; with white flowers, yellow palate, and striae nearly absent; and a very beautiful form with coral pink flowers and few striations. These appear to be variations and not the result of hybridization. All the flowers had the shape typical of *repens*.

L. REPENS × *VULGARIS* = *L. sepium*, Allm. in Proc. Irish Acad. ii. (1844) 404.

Under the above name may be grouped several different hybrids of the above species which have been found in Berkshire.

2. *Ook*. Near Didcot on ballast by the loopline and also near the railway station. Near Upton. Near Cholsey.
3. *Pang*. On the downs above Moulsoford on arable ground. Abundantly near Shooter's Hill, Reading. Pangbourn. On railway ballast near Reading.
5. *Loddon*. Near Henley.

The hybrids offer an almost unbroken chain of intermediates between the two species. They may, however, roughly be arranged into four groups. The first, which is the commoner one, and which comprises at least three-fourths of the individuals, is that in which the *repens* parentage is prepotent, so that there is about a quarter of the *vulgaris* as opposed to three-quarters of the *repens* strain. The flowers are slightly larger than in true *repens*, but the spur, the colour of the flowers, and the striations on them, all show that the *L. repens* is the predominating factor.

A second group may be made up of plants in which the influence of *L. vulgaris* is more evidenced by the larger and paler-coloured flowers; in this about two-thirds of *L. repens* are present to a third of *L. vulgaris*.

The two next groups consist of plants which are better expressed as *L. VULGARIS* × *REPENS*. The first of these (which is even less frequent than the second group alluded to) shows that the *L. vulgaris* parentage is largely present by the increased size and prominence of the yellow palate, the broader leaves, and in the shape and direction of the spur; to this series belongs *L. sepium*, Allman. The last group consists of individuals which are near to *L. vulgaris*, from which they chiefly differ in the faint striations on the yellow corolla and by the narrower leaves. To this I gave the name × *L. BAXTERII* in the *Rep. of Bot. Exch. Club* (1893) 421.

The occurrence of these plants at Oxford affords an absolute proof (if such were needed) of their hybrid origin. Up to the year 1800, *Linaria vulgaris* only occurred. About that date a space of ground between the Great Western and the London and North-Western Railways was filled up with chalk rubble, which had been brought from the chalk district of Berkshire near Upton. With the chalk, the seeds of many chalk plants were introduced. In the year 1800 the chalk was covered with a profuse growth of *Iberis amara*, *Picris Hieracioides*, and less plentifully with *Thymus*, *Daucus*, *Linaria repens*, *Centaurea nigra*, *Verbascum Thapsus*, *Campanula glomerata*, *Festuca rubra*, *Bromus erectus*, &c. *Linaria vulgaris*, which had previously existed in the vicinity, was also common, but no hybrids were seen that season. In the following year, however, hybrid plants occurred in great quantity, but they belonged almost exclusively to the first two groups described above. In 1802 the remaining two groups occurred, so that in going over the ground an almost unbroken chain of intermediates between *L. repens* and *L. vulgaris* could be found. A botanist unaware of the history of *L. repens* and *L. vulgaris* might have been excused if he had described them under one species. The year 1803 marked the maximum quantity of the hybrids, which have since become much diminished in quantity; the native vegetation of Oxford now threatens to destroy the settlers. Instead of the white *Iberis*, the red *Centaurea*, and the blue and yellow *Linaria* and *Picris*, the surface is becoming covered with grasses; probably a few years only will elapse before this object-lesson will be a thing of the past, the chalk plants extirpated under the stress of stronger competitors, and the covering of the chalk by dead vegetable matter, garden refuse, and soil from the immediate neighbourhood.

L. vulgaris, which up to the time of the introduction of *L. repens* had been a fairly constant plant, now assumed great variability, not necessarily in the direction of *L. repens*. This will be noticed under *L. vulgaris*.

Seeds of the first group of hybrids were planted; they yielded plants still nearer to *L. repens*, and indeed might have passed as such. Seeds of this second generation, however, yielded plants in which the *L. vulgaris* parentage was more evident. *L. vulgaris* pollen had been kept from them. See *Annals Bot.* x. (Dec. 1896) 622.

At Pangbourn a large series of hybrids have also been found.

Specimens were distributed by me through the Bot. Exch. Club in 1892, &c.

× *L. Baxterii* occurred with the other hybrids at Didcot in 1896.

L. repens occurs in Bucks, Hants, and Oxfordshire.

L. vulgaris, Miller, l. c., n. 1 (1768). *Yellow Toad-flax*.

L. Linaria, Karst. Deutsch. Fl. 947 (1880-83). *Linaria vulgaris lutea*, Ger. Em. 550. *Antirrhinum Linaria*, Linn. Sp. Pl. 616. *Linaria*, Gerard, 440.

Top. Bot. 297. Syme, E. B. vi. 140, t. 962-3. Nyman, 537. Fl. Oxf. 212. Native. Septal. Hedges, waysides, cultivated ground on sandy soil and railway banks. Locally common. P. June-October.

First record. Sonning, Mr. S. Rudge, in *Herb. Brit. Mus.* 1800. Published as *Antirrhinum linaria* in *Mavor's Agr. Berks*, 1809.

L. vulgaris is a very striking feature in our vegetation, and its bright yellow flowers are a general favourite. It is too frequent to need an enumeration of localities.

LINARIA VULGARIS × REPENS. 'Found at Sulham, near Reading, August, 1877. Two varieties growing plentifully and near together, but quite distinct, on chalk; one kind, white-striped with lilac and yellow throat, the other white, except yellow throat; the sepals of both shorter than the spur, and generally wrinkled with a ring, but some with a wrinkled border,' Miss S. M. Payne in *Bot. Exch. Club*, 1877-8.

Miss Payne's specimens are much nearer to *repens* than to *L. vulgaris*.

For further description of hybrids of *L. vulgaris* and *L. repens* see a note under the latter species.

Under *L. repens* the fact was noted that, after hybridization of *L. vulgaris* and *L. repens* had gone on for some time, *L. vulgaris*, in which no trace of *L. repens* parentage occurred, exhibited a great degree of variability.

A considerable number of forms have been seen on railway banks at Didcot, Reading, and near Oxford. These include—*f. concolor*, in which the flowers are of a uniform pale yellow without a dark orange palate; *f. bicolor*, in which the corolla is of a very pale opaque cream-colour and with a conspicuous orange-coloured palate. Each of these occurs in narrow-leaved and in broad-leaved forms.

Var. PULCHELLA, mihi. This variety was distributed in 1892 through

the Bot. Exchange Club. It is an exceptionally narrow-leaved, slender plant with handsome flowers, the corolla whitish-yellow with large and conspicuous palate of deep orange colour. The chief difference is in the spur, which in *vulgaris* is described by Syme as nearly straight, and by Hooker as parallel, and longer than the tube. In this variety the spur is so much bent as to be almost at right angles to the tube. The upper petals are so much reflexed that when looked at from the front they present only their edges to view. The pedicels are covered with gland-tipped hairs. W. A. Bromfield alluded to a form with milk-white corolla and palate deep orange, as var. γ , in the *Phyt.* (1849) 627. A form of otherwise normal *L. vulgaris*, which had three spurs, was seen at Maidenhead.

The question arises whether the variability of *L. vulgaris* (and other species) may have been caused by the pollination by a second species in one of its ancestors, so that the stability of the species has been disturbed? This may have taken place, not necessarily in the generation immediately preceding, but in a more remote ancestor, so that the hybrid influence had been gradually neutralized by successive pollination with a similar species. A hybrid is almost always handicapped by the more numerous individuals of one or the other parent, so that the chances are immensely against the pollination by a similar hybrid form. Hence in fertile hybrids the influence of one or other of the parents is gradually eradicated. My point is that after the traces of cross-pollination have disappeared, it does not follow that an equally stable species remains as that which existed before the cross-pollination took place. I think it will be found that the plant is more distinctly liable to variation, not necessarily in the direction of its remote ancestor, but in other ways. To remote hybridization I think must be attributed the extreme variability exhibited by certain genera, such as *Rubus*, *Rosa*, *Salix*, *Prunus*, *Epilobium*, &c.; these genera, as we know, being especially prone to hybridization.

**L. PURPUREA*, Miller, l. c., n. 5 (1768). *Purple Toad-flax.*

Antirrhinum purpureum, Linn. Sp. Pl. 613.

Comp. Cyb. Br. 541. Syme, E. B. vi. 138, t. 960. Nyman, 539. Fl. Oxf. 212. Alien. Old walls. Rather rare, and in most cases a mere garden escape, but readily establishing itself if undisturbed. P. June-September. First found in Berkshire by the author in 1880.

1. Isis. Wytham.
2. Ock. Marcham, on the village wall. Kennington. Hanney.
4. Kennet. Southcote. Reading Abbey.
5. Loddon. Maidenhead.

L. purpurea is reported from Oxfordshire, Bucks, Hants, and Wilts.

L. viscida, Moench, Meth. 524 (1794). *Small Toad-flax.*

L. minor, Desf. Fl. Atl. ii. 46 (1799). *Antirrhinum minus*, Linn. Sp. Pl. 617 (1753). *Chaenarrhinum minus*, Lange, in Willk. and Lange, Prod. Fl. Hisp. ii. 579.

Top. Bot. 297. Syme, E. B. vi. 143, t. 966. Nyman, 542. Fl. Oxf. 214. Native or colonist. Agrestal. Cultivated ground, waste places. Rather local. Particularly fond of railway ballast, and frequent along the permanent way of the Great Western Railway. A. May-September.

S. nodosa, Linn. Sp. Pl. 619 (1753). *Figwort.*

S. nodosa foetida, C. B. Pin. 235. *S. major*, Gerard, 579.

Top. Bot. 293. Syme, E. B. vi. 123, t. 949. Nyman, 533. Fl. Oxf. 210. Native. Sylvestral. Damp woods, thickets, hedges, &c. Generally distributed and rather frequent. P. May 15-August.

First recorded by Mr. Bobart in Ray, *Syn.* ed. 2, 161, 1696 (a variety), and as *Figwort* in *Spencer's Complete British Traveller*, 1771.

The typical plant is so widely distributed in our woodland districts as to render it unnecessary to give localities.

Var. *Bobartii*, Pryor in Journ. Bot. (1877) 238. *S. nodosa*, var. *b*, Sm. Engl. Fl. iii. 138. *S. Ehrharti*, Britt. Contr., not of Stevens.

This is the plant mentioned in Ray's Synopsis, l. c., as '*S. major, caulibus, foliis et floribus viridibus*, D. Bobert. Common Figwort is called Brownwort from its remarkable brown colour. This hath nothing of brownness in it.'

The plant was found at Cumnor by Bobart, and specimens are preserved in the Herbaria of Morison and Du Bois at Oxford. They show that the plant is a form or variety of *S. nodosa*, not as Mr. Britten calls it in the *Contributions*, *S. Ehrharti*, with which it has nothing in common. Archbishop Whately reformed it in 1830, and Baxter states in *Phaen. Bot.* n. 385 (1835) 'that it was introduced by him into the Botanic Garden at Oxford,' where it remained unchanged by cultivation for many years.

Var. *BRACTEATA*, mihi. This plant, which grows in muddy, shady ditches on the London Clay near Loddon Bridge, Coleman's Moor, Ruscombe, and Hurst, has much of the appearance of *S. alata*, Gilib. Fl. Lituan. ii. 127, the inflorescence having foliaceous bracts, the stem being more conspicuously winged, and the leaves much larger and of a thinner texture. The plant is also much more branching than the type. These characters, it may be said, are insufficient to mark it as a variety, and are possibly caused by its place of growth, but they are sufficiently marked to warrant attention, since by more than one botanist it has been referred to *S. alata*, from which the rootstock, covered with fleshy knobs, at once distinguishes it. Can this be the plant recorded as *S. Ehrharti* from Chalfont in Bucks?

A var. *verticillata* is described by Brébisson, l. c., with the leaves in threes, but I have not noticed it in Berkshire.

S. nodosa is found in all the bordering counties.

[**S. ALATA**, Gilib. Fl. Lituan. ii. 127 (1781), not of Asa Gray.

S. umbrosa, Dumort. Fl. Belg. 37 (1827) (made synonymous with *S. aquatica* in Index Kewensis). *S. Ehrharti*, Stev. in Ann. Nat. Hist. v. (1840) 3. *S. aquatica*, Linn. Sp. Pl. 620 p. p., and Nyman, 533.

Syme, E. B. vi. 122, t. 948.

Error. Cumnor, in Britt. Contr. 52. The plant is *S. nodosa*, var. *Bobartii*.]

or absent from the north of the county, where it is only of casual occurrence, but rather frequent south of the Pang stream. A. June-October.

First record. Sonning, *Mr. S. Rudge in Herb. Brit. Mus.* 1800. Published in *Russell's Cat.* 1839.

2. *Ock.* Near Cothill. Casual only in this district.

3. *Pang.* Bradfield, *Jenkinson.* Pangbourn, *Rev. Aubrey Moore.* Tilehurst. Near Sulham. Bucklebury.

4. *Kennet.* Newbury, *Russell's Cat.* 1839. West Woodhay. Elcot, *Reeks.* Crookham, *Stubbs in Britt. Contr.* Mortimer, *Tufnail.* Weston, *Osmond.* Greenham. Padworth. Burghfield. Between Southcote and Burghfield. Silchester. Abundant about Theale, and in fields between Theale and Reading. Wash Common, Newbury.

5. *Loddon.* Sonning, *Rudge.* In the common field opposite Bisham Wood, *Mill.* Wargrave, *Britt.* Swallowfield, *Tufnail.* Finchampstead, *Penny.* Remenham, not uncommon, *Stanton.* Wokingham, *Crawley.* One plant near the Albert Bridge, Windsor, *Bolton King.* Sandhurst. Jouldern's Ford. Loddon Bridge. Bisham. Hurley. Whistley Green. Arborfield. Waltham.

A. Orontium, which is very rare in Oxfordshire, is recorded for all the bordering counties.

SCROPHULARIA, Linn. Gen. n. 674 (Tournefort, Inst. t. 74).

S. aquatica, Linn. Sp. Pl. 620 (1753). p. p. *Water Betony.*

Betonica aquatica, Gerard, 579. *Scrophularia Balbisti*, Syme, not of Hornem. *S. oblongifolia*, Nyman, 532, ? if of Lois.

Top. Bot. 294. Syme, E. B. vi. 120, t. 947. Nyman, 532. Fl. Oxf. 210. Native. Paludal. Sides of rivers and brooks, wet places, damp woods, &c. Common and scattered through the county, but rare or absent from some of the parishes on the upland chalk in the north-west. P. June-September.

First record. *S. aquatica*, Figwort, Dr. Noehden, *Mavor's Agr. Berks.* 1809.

Although the more natural home of the Water Betony is by the banks of streams, I have seen it growing freely in chalk ballast by the railway. It occurs in a wood at Kingston Bagpuze with a yellowish green foliage.

Var. *pubescens*, Brébisson, Fl. de la Normandie, ed. 4, 218 (1869), has been seen near Hurst, Windsor, &c.

S. aquatica, which is fertilized by wasps, is found in all the bordering counties.

S. nodosa, Linn. Sp. Pl. 619 (1753). *Figwort.*

S. nodosa foetida, C. B. Pin. 235. *S. major*, Gerard, 579.

Top. Bot. 293. Syme, E. B. vi. 123, t. 949. Nyman, 533. Fl. Oxf. 210. Native. Sylvestral. Damp woods, thickets, hedges, &c. Generally distributed and rather frequent. P. May 15-August.

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The typical plant is so widely distributed in our woodland districts as to render it unnecessary to give localities.

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S. aquatica, Linn. Sp. Pl. 620 p. p., and Nyman, 533.

Syme, E. B. vi. 122, t. 948.

Error. Cumnor, in Britt. Contr. 52. The plant is *S. nodosa*, var. *Bobartii*.]

***S. vernalis**, Linn. Sp. Pl. 620 (1753).

Yellow Figwort.

S. flore luteo, Ger. Em. 717.

Comp. Cyb. Br. 541. Syme, E. B. vi. 125, t. 951. Nyman, 532. Fl. Oxf. 210. Denizen. Heaths and bushy places. Very rare. P. April-June.

First record. *S. vernalis*. Yellow Figwort, Mr. Bicheno, *Mavor's Agr. Berks*, 1809.

3. **Pang**. Common about Bucklebury and Marsom [Marlstone], Bicheno, l. c. See also *Sm. Engl. Fl.* iii. 140. Hermitage, *Hewett's Hist.* Near Bucklebury in great plenty, *Sheffield's MS.* Bucklebury Common, *Weaver*, 1894. I have seen it there, but only in a hedge of an orchard, where it is naturalized. It is said also to grow near the church.

4. **Kennet**. Newbury, *Winch MSS.*, also spec. in *Mrs. Cecil's Herb.* 1869. *S. vernalis* is recorded for Surrey, and it occurs at Dropmore in Bucks, but probably planted.

MIMULUS, Linn. Gen. n. 701 (*Cynorrhynchium*, Mitch. 3).

***M. LANGSDORFFII**, Donn, in Sims, Bot. Mag. under t. 1501, and in Cat. Cantab. 182 (1812). Yellow Monkey-flower.

M. guttatus, DC. Cat. Hort. Monsp. 127 (1813). *M. luteus*, Pursh, Fl. Am. Sept. ii. 426 (1814), and of English authors, not of Linn.

Comp. Cyb. Br. 542. Syme, E. B. vi. 145, t. 967. Nyman, 536. Fl. Oxf. 222. Alien. Paludal. Margins of streams and marshes, thoroughly established, and forming locally a conspicuous feature in our flora. P. June-Oct. First recorded under the name of *M. luteus* by the Rev. W. M. Rogers in *Journ. Bot.* 342, 1887, and as *M. Langsdorffii* by the author, l. c. 479, 1896.

3. **Pang**. *M. luteus*. A well-established alien in the stream at Hampstead Norris, *W. M. Rogers*.

4. **Kennet**. *M. luteus*, Newtown and Aldern Bridge, *Weaver in Hawkins' Guide to Newbury*, 1890. Thatcham, *Mr. F. Garry*. Bagnor Bog, in great quantity; from this locality it has been carried down the Lambourn stream into the Kennet. Plentiful in the Emborne stream from Greenham Common eastward for some distance, owing its origin to the ornamental water at Highclere, where it was originally planted.

5. **Loddon**. Margin of island at Boulney Court, *Stanton*.

Prof. E. L. Greene's paper on *Mimulus luteus* in *Journ. Bot.* (1895) 4, suggested to me the desirability of investigating our British specimens.

In my opinion the Greenham plants clearly belonged to *M. Langsdorffii*, and Prof. Greene, writing from the Catholic University, Washington, in September, 1896, endorses my opinion.

So far I have seen no wild specimens of *M. luteus* in Berkshire (all of our plants belonging to *M. Langsdorffii*), but a plant from a waste garden at Appleton may, Prof. Greene thinks, be possibly the Linnean species.

M. Langsdorffii was introduced into Europe by Langsdorff from Unashka [Unalaska], one of the Fox Islands in North America. The true *M. luteus* is a native of South America.

****M. MOSCHATUS**, Dougl. in Lindl. Bot. Reg. t. 1118 (1827). Comp. Cyb. Br. 542.

A North American alien. Occurred in a naturalized condition in a small ditch by the railway between Wellington College and Sandhurst. There was no garden or signal-box in the immediate vicinity.

LIMOSELLA, Linn. Gen. n. 694 (*Plantaginella*, Dill. Gen. 6).**L. aquatica**, Linn. Sp. Pl. 631 (1753). *Mudwort*.

Top. Bot. 298. Syme, E. B. vi. 146, t. 968. Nyman, 549. Fl. Oxf. 219.
 Native. Paludal. Very rare and local. Muddy ditches. A. August.
 First found in Berkshire by the author in 1896.

5. Loddon. In a muddy ditch near Sandhurst, 1896.

['Binsey Common,' *Britt. Contr.*] Binsey Common is in Oxfordshire, and no longer yields *Limosella*, which is recorded for Surrey and Hampshire, but I am afraid has been destroyed in the Brockenhurst station.

DIGITALIS, Linn. Gen. n. 676 (Tournefort, Inst. t. 73).**D. purpurea**, Linn. Sp. Pl. 621 (1753), and of Gerard. *Foxglove*.

Top. Bot. 295. Syme, E. B. vi. 127, t. 952. Nyman, 535. Fl. Oxf. 211.
 Native. Sylvestral. Heaths, dry open woods, commons, and bushy places. Locally common, but evincing a decided preference for sandy or gravelly soil. B. or P. May–September.

First record. *Foxglove*. It grows plentifully in Chylsey [Childswell] wood beyond Hincksey, *MS. in Lyte's Herball*, 1660. *Digitalis purpurea*, Dr. Noehden and Mr. Bicheno in *Mavor's Agr. Berks*, 1809.

1. **Isis**. Abundant near Cumnor, *Baxter, Phaen. Bot.* n. 113.

2. **Ock**. Childswell Wood, *MS. in Lyte*. Still there in 1896.
 Near Marcham, *Walker*. Hen Wood, *Sister Jane Frances*. Tubney.

3. **Pang**. Very common in some woods about Hampstead Norris. Plentiful in Park Coppice and Down Wood, *Lousley in Russell's Cat*. Streatley, *Pamplin*. Hawkridge Wood. Ashampstead. Basildon. Fence Wood. Oare Wood. Tilehurst. Curridge Near Yattendon. Bucklebury.

4. **Kennet**. Very luxuriant near Newbury, but rarely or never found in the Vale of the White Horse, *Bicheno*. Greenham, *Weaver*. Mortimer, *Tufnail*. Abundant over the heathy tract, as at Snelsmore, Wickham, Hampstead Marshall, Inkpen, &c.

5. **Loddon**. Bowsey Hill Wood. Wargrave, *Melvil*. Remenham Wood, *Stanton*. Wokingham. Ambarrow. Windsor Park. Knowl Hill. Bracknell. Ascot, &c.

Digitalis purpurea is found in all the bordering counties.

VERONICA, Linn. Gen. n. 25 (Tournefort, Inst. t. 60).****V. SPICATA**, Linn. Sp. Pl. 10 (1753). Syme, E. B. vi. 161, t. 982.

Alien. Casual. Three or four plants in Wellington College brickyards, *Rev. C. W. Penny in Britt. Contr.* 1871.

[V. HYBRIDA], Linn. Sp. Pl. 11 (1753). Syme, E. B. vi. 162, t. 983.

'Welsh Speedwell,' *Dr. Noehden in Mavor's Agr. Berks*. An error.]

V. hederacfolia, Linn. Sp. Pl. 13 (1753). *Ivy-leaved Speedwell.*

Alsine hederulae folio, C. B. Pin. 250. *Alsine Hederacea*, Gerard, 493.

Top. Bot. 290. Syme, E. B. vi. 149, t. 970. Nyman, 549. Fl. Oxf. 219. Native. Agrestal. Waste and cultivated ground, especially in light sandy fields, hedge-banks, and garden soil. Locally abundant and with a wide range of distribution. A. February–July.

First record. *V. hederacfolia*, Dr. Noehden, in *Mavor's Agr. Berks*, 1809. With white flowers at Tilehurst.

V. hederacfolia is found in all the bordering counties.

[**V. VERNA**, Linn. Sp. Pl. 14 (1753). Syme, E. B. vi. 154, t. 975.

? Error. Poor soil in a sloping grass-field in the parish of Wickham. Two years before the field had been ploughed and put down for seed hay, *Miss Bowen in lit.* Miss Bowen tells me she compared the plant with the figure and description, and believes she is correct. I cannot help thinking it was the heath form *V. arvensis*, var. *nana*.]

V. didyma, Tenore, Fl. Napol. Prod. vi. (1811). *Grey Speedwell.*

V. polita, Fries, Nov. Fl. Suec. ed. 2, 1 (1828).

Top. Bot. 290. Syme, E. B. vi. 150, t. 971. Nyman, 548. Fl. Oxf. 218. Native. Agrestal. Cultivated ground. Common and widely distributed. A. January–December.

First record. *V. polita*, without locality in *Russell's Cat.* 1839.

V. didyma is found in all the bordering counties.

V. agrestis, Linn. Sp. Pl. 13 (1753). *Green Speedwell.*

Alsine foliis Trissaginis, Gerard, 492. *V. versicolor*, Fries, Nov. ed. 2 (1828) 2 (not of Visiani).

Top. Bot. 290. Syme, E. B. vi. 151, t. 972. Nyman, 548. Fl. Oxf. 218. Native. Agrestal. Cornfields, garden-ground, waste places, heaths, wall-tops. Common and generally distributed, but in some localities less frequent than the preceding species. A. Jan.–Dec.

First recorded, but without locality, in *Russell's Catalogue*, 1839.

When the calyx segments are serrated it is the var. *calycida*, Fries, see *Fl. Danica*, t. 2221; but I have not observed this form in Berkshire.

V. agrestis is found in all the bordering counties.

V. Tournefortii, Gmel. Fl. Bad. i. 39 (1806).

V. persica, Poir. in Lam. Enc. Méth. viii. 542 (1808). *V. Buxbaumii*, Tenore, Fl. Napol. Prod. 1, 7 (1811).

Top. Bot. 291. Syme, E. B. vi. 152, t. 973. Nyman, 548. Fl. Oxf. 219. Colonist. Agrestal. Cultivated fields and garden-ground. Common and widely distributed. A. January–December.

First recorded as *V. filiformis*. Brimpton, *Rev. H. Kirby*, 1825, in *Herb. Oxf.*

Published as *V. Buxbaumii* by Mr. W. Pamplin in *Phyt.* v. 156, 1854.

V. Tournefortii occurs in all the bordering counties.

V. arvensis, Linn. Sp. Pl. 13 (1753). *Wall Speedwell*.

Alsine foliis veronicae, Gerard, 489.

Top. Bot. 288. Syme, E. B. vi. 155, t. 976. Nyman, 547. Fl. Oxf. 218. Native. Ericetal, &c. Heaths, walls, cultivated ground, dry banks, and turf ground. Common and generally distributed. A. February-July.

First record. *V. arvensis*, Dr. Noehden, in *Mavor's Agr. Berks*, 1809.

Var. *nana*. To this I refer a small simple stemmed plant which is not unfrequent on our drier heaths, and which retains much of its peculiarity in cultivation. I have seen it from Mortimer, Sandhurst, Swinley, Windsor, &c. It is probably the *V. nana*, Lam., see Koch, Syn. Fl. Germ. 530 (1837). A very luxuriant branching plant, which has been found by me in flinty soil near Bradfield, is probably the var. *polyanthos* (Thuill. Fl. Par. ed. 2, 9, as a species).

V. serpyllifolia, Linn. Sp. Pl. 12 (1753). *Paul's Betony, Smooth Speedwell*.

Veronica minor, Ger. Em. 627. *V. minor serpyllifolia*, Lobel, 250.

Top. Bot. 288. Syme, E. B. vi. 157, t. 978. Nyman, 547. Fl. Oxf. 218. Native. Agrestal, &c. Cultivated ground, wet pastures, moist heaths, roadsides, &c. Common in all the districts and in every variety of situation, and occurring in the Abbey grounds at Reading. March-October.

First record. *Paule's Betony, Male Veronica*. In all such places about Oxford, MS. in *Lyte's Herball*, 1660¹. Published as *V. serpyllifolia* in *Russell's Cat.* 1839.

V. serpyllifolia occurs in all the bordering counties.

V. officinalis, Linn. Sp. Pl. 11 (1753). *Male Speedwell, Common Speedwell*.

V. mas vulgaris supina, Park. 550.

Top. Bot. 289. Syme, E. B. vi. 162, t. 984. Nyman, 545. Fl. Oxf. 216. Ericetal. Heaths, dry woods, and pastures, &c. Locally abundant, especially in the heathy districts. P. May-August.

First record. *V. officinalis*, Dr. Noehden, in *Mavor's Agr. Berks*, 1809.

1. Isis. Wytham Wood. Near Faringdon. Pusey.
2. Ock. Bagley, *Baxter*. Marcham, *Walker*. Wootton Heath, *Dillenius in Herb. Oxf.* Hen Wood. Boar's Hill. Frilford. Besilsleigh. Cumnor Hurst.
3. Pang. Streatley, *Pamplin*. Fence Wood. Cold Ash. Oare. Hermitage. Basildon Wood. Bucklebury. Bradfield. Tilehurst. Heath Wood. Withy Coppice. Dark Lane Copse.
4. Kennet. Mortimer, *Tufnail*. On Walbury Hill, about 900 feet.

¹ The description in *Lyte's Herball* would seem to refer to *V. officinalis*.

Burghfield. Snelsmore, &c. Common on the heathy parts of this district.

5. **Loddon.** Wellington College, *Penny*. Binfield, *Miss Palmer*. Common about Park Place, *Stanton*. Common in the drier parts of Windsor Forest, and very frequent over the heathy parts of the district.

The flowers are sometimes pink in colour.

V. officinalis is found in all the bordering counties.

It may have been this species which was intended as 'Paule's Betony' in the MS. note in *Lyte's Herball*.

- V. Chamaedrys**, Linn. Sp. Pl. 13 (1753). *Germander Speedwell*,
Wild Germander.

Chamaedrys sylvestris, Gerard, 530.

Top. Bot. 290. Syme, E. B. vi. 164, t. 986. Nyman, 546. Fl. Oxf. 216. Native. Septal. Hedge-banks, borders of woods, &c. Common and generally distributed. P. March-July.

First record. *V. chamaedrys*, Dr. Noëhden, in *Mavor's Agr. Berks*, 1809.

Pale lilac and pink-flowered plants with pale lilac and pink flowers have been noticed. The leaves and upper parts of the stem are often disfigured by the galls produced by *Cecidomyia Veronicæ*, as in Wytham, &c.

V. Chamaedrys is a common plant in all the bordering counties.

- V. montana**, Linn. Amoen. Acad. iv. 263 (1759). *Mountain Speedwell*.

Top. Bot. 289. Syme, E. B. vi. 166, t. 987. Nyman, 546. Fl. Oxf. 217. Native. Sylvstral. Shady woods. Local and not frequent. P. April-July.

First record. *V. montana*, Mountain madwort, Mr. Bicheno, *Mavor's Agr. Berks*, 1809.

1. **Isis.** Cumnor, *Boswell*. Wytham Wood, *Mrs. Westwood*.

2. **Ock.** Bagley Wood, *Baxter in Walk. Fl.*

3. **Pang.** Pig's Lane, Tilehurst, *Walk. Fl.* Streatley, *Pamplin*. Unwell Wood. Basildon. Between Bradfield and Bucklebury.

4. **Kennet.** Included in Russell's *Newbury Cat.* Mortimer, *Tufnail*. Riever Wood.

5. **Loddon.** In Bisham Wood, and in most of the moist woods in the neighbourhood, *Mill*. Wargrave, *Melville*. Park Place, *Stanton*. Ashley Hill. Bowsey Hill. Quarry Wood.

V. montana is recorded from all the bordering counties.

- V. scutellata**, Linn. Sp. Pl. 12 (1753). *Marsh Speedwell*.

Anagallis aquatica angustifolia scutellata, C. B. Pin. 252.

Top. Bot. 288. Syme, E. B. vi. 167, t. 988. Nyman, 546. Fl. Oxf. 217. Native. Uliginal. Peaty and marshy places. Locally common, but absent from considerable areas. P. June-August.

First record. *V. scutellata*, Mr. Bicheno, *Mavor's Agr. Berks*, 1809.

1. *Isis*. In Wytham meadows.
2. *Ock*. Bagley Wood, *Baxter in Walk. Fl.* Radley. Marcham.
3. *Pang*. Fair Cross Pond, *W. M. Rogers*. Fence Woods. Bucklebury. Oare.
4. *Kennet*. Between Kintbury and Hungerford, *Reeks*. Mortimer, *Tufnail*. Burghfield, *Bird*, 1833. Wash Common, *Weaver*. Aldermaston. Silchester. Greenham. Spencer's Wood Common. Snelsmore.
5. *Loddon*. Foot of Winter Hill, *Britt*. Ascot, *Wilkin*. Hemerton, pools and ditches in the water meadows near Henley. Warren Row, *Stanton*. Wellington College, *Penny*. Virginia Water. Windsor Park. Near Bearwood. Coleman's Moor. Twyford. Whistley Green. Sindlesham. Sandhurst. Finchampstead. Ruscombe. Long Moor.

Var. *VILLOSA*, Schum. Enum. Pl. Saell. 7 (1801)¹. *V. Parmularia*, Poit. & Turp. Fl. Par. 16, t. 14. This variety, which appears to be fairly well defined, is usually found in distinct areas from the glabrous plant, usually on patches of London Clay or on peaty heaths. In Oxfordshire the latter is much the commoner, if not the prevailing form, but in the south-west of Berkshire the pubescent variety is perhaps the more frequent plant.

I have it from Coleman's Moor, where it occurred with the type, Sandhurst, Ascot, Long Moor, Easthampstead, Virginia Water (*Herb. Moore ex Britt. Contr.*), Finchampstead, near Newbury, Greenham Common, &c.

Specimens from Sandhurst were sent to the *Bot. Exch. Club* in 1891, by the author; see *Rep.* 342, and 381 for 1892.

V. scutellata occurs in all the bordering counties.

V. *Anagallis-aquatica*, Linn. Sp. Pl. 12 (1753). *Water Speedwell*.

Anagallis aquatica, Gerard, 496.

Top. Bot. 288. Syme, E. B. vi. 168, t. 989. Nyman, 546. Fl. Oxf. 217. Native. Paludal. Ditches, brooks, ponds, &c. Rather common and widely distributed, especially in the low-lying districts. P. June-August.

First record. Near Windsor, *Sir Joseph Banks in Herb. Brit. Mus.* 1774. *V. anagallis*, Dr. Noehden, in *Mavor's Agr. Berks*, 1809.

1. *Isis*. Wytham. Appleton. Faringdon. Buscot. Shrivenham. Bourton. Bablock Hythe, frequent.
2. *Ock*. South Hinksey, *Baxter*, 1827. Marcham, *Walker*. Abingdon. Radley. Shippon. Lyford. Appleford. Kennington. Sutton.

¹ See [Weber] in Wigger's Prim. Fl. Holsat. 3 (1780), where it is described but not named.

Courtney. Wantage. Didcot. Hagborne. Blewbury. Aston Tirrel. Uffington, frequent.

3. Pang. Hampstead Norris, *W. M. Rogers*. Pangbourn. Moultsford. Tidmarsh. Bradfield. Standford Dingley. Purley.
4. Kennet. Ham Mills, *Weaver*. Weston, *Osmond*. Winterbourne, *W. M. Rogers*. Burghfield meadows, *Tufnail*. Southcote. Kintbury. Wash Common. Beenham. Theale. Padworth.
5. Loddon. Thatcher's Ford. Jouldern's Ford. Sandhurst. Swallowfield. Arborfield. Bisham. Wargrave. Coleman's Moor. Ruscombe. Waltham. Sonning. Cookham. Bray. Clewer. Frogmore.

Var. *ANAGALLIFORMIS* (Boreau, Fl. du Centre Fr. ed. 3, ii. 489, as a species). In Berkshire I have seen no plants with such glandular inflorescence as is to be found in this variety in Ross-shire. Our specimens usually have a few glands in the upper portion of the inflorescence only, and the plant is more branching and luxuriant.

V. Anagallis-aquatica is found in all the bordering counties.

V. Beccabunga, Linn. Sp. Pl. 12 (1753). *Brooklime*.

Anagallis seu Beccabunga, Gerard, 496. *Beccabunga*, Rivinus.

Top. Bot. 289. Syme, E. B. vi. 169, t. 990. Nyman, 546. Fl. Oxf. 218. Native. Paludal. Ditches, ponds, shallow streams, and wet places. Frequent and generally distributed. P. May-August.

First record. *V. beccabunga*, Dr. Noehden, in *Mavor's Agr. Berks*, 1809.

The Brooklime is too frequent to need particular localities being given. A very small form of it occurred on the muddy margin of one of the dew ponds on the chalk downs, near Unwell Wood. Beautiful patches of it with very dark blue flowers occurred in a dry wood near Coleshill. A form with pink flowers is sometimes found; it is *V. LIMOSA*, Lej. Rev. Flore, Spa, 2. When the bracts are much longer than the peduncle it is the var. *bracteata*, Brébisson, Fl. Normandie, 227.

V. Beccabunga is found in all the bordering counties.

EUPHRASIA, Linn. Gen. n. 659 (Tournefort, Inst. t. 78).

E. officinalis, Linn. Sp. Pl. 604 (1753). *Eye Bright*.

E. officinarum, C. B. Pin. 233. *Euphrasia*, Gerard, 537.

Top. Bot. 292. Syme, E. B. vi. 171, tt. 991-2. Nyman, 551. Fl. Oxf. 220. Native. Ericetal and pascual. Heaths, pastures, roadsides, chalk downs, &c. Locally abundant. A. May-September.

First record. *E. officinalis*, Dr. Mavor, in *Agr. Berks*, 1809.

With *Uredo Rhinanthacearum* [*Coleosporium euphrasiae*] on it about Oxford, Baxter, *Phaen. Bot.* 72, 1834.

Euphrasia is a very variable species which has been divided into

a large number of micro-species. These have been studied by Mr. F. Townsend, the author of the *Flora of Hampshire*, who has kindly examined many of my specimens. In 1896 Dr. R. von Wettstein of Prague published an elaborate Monograph of the genus.

Our most frequent and most widely distributed form is

Var. *memorosa* (Pers. Syn. ii. 149 (1807), as a species), Wettst. Mon. Euphr. 118. Syme, E. B. t. 992?

1. *Isis*. Wytham meadows. Idstone. Faringdon.

2. *Ock*. Cothill. Boar's Hill. Letcombe. Wantage Downs. Tubney. Wittenham. Radley.

3. *Pang*. Moulsoford. Ashampstead. Compton.

4. *Kennet*. Farnborough. Lambourn. Hungerford. Mortimer.

5. *Loddon*. Long Moor. Bearwood. Bracknell. Broadmoor. Loddon Bridge. Windsor Park. Stubbing's Heath, &c.

Var. *GRACILIS*, Fries, Fl. Hall. 104, 1818. Syme, E. B. t. 992 (right-hand figure). *E. micrantha*, Reichb. Fl. Germ. Exc. 358 (1831-1832), Wettst. Mon. Euphr. 143-6.

3. *Pang*. Ilsley Downs. Purley.

5. *Loddon*. Finchampstead. Sandhurst. Windsor Forest.

E. officinalis is found in all the bordering counties.

BARTSIA, Linn. Gen. n. 657.

B. Odontites¹, Huds. Fl. Angl. ed. 2, 268 (1778). *Red Eyebright*.

Crataegonon Euphrosyne, Gerard, 85. *Euphrasia Odontites*, Linn. Sp. Pl. 604 (1753). *Odontites rubra*, Gilib. Fl. Lituan. i. 126 (1781).

O. verna, Reichb. Fl. Germ. Exs. 359.

Top. Bot. 292. Syme, E. B. vi. 174, t. 993. Nyman, 550. Fl. Oxf. 219. Native. Pascual, agrestal. Cultivated fields, pastures, waysides, &c. Common and generally distributed, except on ground which has never been cultivated, but it is frequent along roadsides, especially in cold stiff soils. A. June-September.

First record. *Euphrosyne rubra*, found by E. Ashmole in his orchard at Bradfield, MS. in [How's] *Phyt. Brit.* 1651. It is probably also the plant referred to as *Euphrosyne flore albo*, Cow-wheat, with white flowers near Oxford, Mr. Martin, *How's Phyt. Brit.* 1650. Sonning, Mr. S. Rudge, 1800, in *Herb. Brit. Mus. Euphrasia odontites*, in *Mavor's Agr. Berks*, 1809. *Bartsia Odontites*, with *Uredo Rhinanthacearum* (*Coleosporium euphrasiasae*), Baxt. *Phaen. Bot.* n. 223 (1837).

B. Odontites is found under two marked varieties.

Var. *VERNA* (Reichb. Ic. Fl. Germ. et Helv. 57, t. 107, as a species).

In Berkshire it is found chiefly in cornfields, where it is not unfrequent among the stubble. In Scotland, at any rate in the north,

¹ Spelt *Odontitis* by Huds.

it is the only form which I have noticed, and it grows there on the roadside among the turf.

1. *Isis*. Shrivenham. Faringdon. Wytham. Eaton Hastings.
2. *Ook*. Cothill. Wootton. Uffington. Wantage. Lockinge. Appleford. Radley. Ferry Hinksey.
3. *Pang*. Bradfield. Purley. Sulham. Tilehurst.
4. *Kennet*. Mortimer. Hungerford. Theale. Englefield. Padworth. Southcote. Kintbury. Woodhay.
5. *Loddon*. Risely. Wargrave. Bisham. Windsor. Wokingham. Sandhurst.

Var. *SEROTINA* (Bertol. Amoën. Ital. 33, as a species). *Odontites serotina*, Dumort. Fl. Belg. 32. *Euphrasia serotina*, Lam. Fl. Fr. ed. 2, iii. 350.

Common by roadsides, field-borders, and on cold stiff soil. Often very abundant. It occurs plentifully in all the districts, as at

1. *Isis*. Longworth. Cumnor. Coleshill, &c.
2. *Ook*. Boar's Hill. Kennington. South Hinksey. Marcham. Didcot. Denchworth. Cholsey. Uffington. Cothill, &c.
3. *Pang*. Moulsoford, *Newbould*. Ilsley. Compton. Hampstead Norris. Tilehurst. Bucklebury, &c.
4. *Kennet*. Catmore, *W. M. Rogers*. Kintbury. Mortimer. Hungerford. Theale. Midgham. Sulhampstead.
5. *Loddon*. Bracknell. Wargrave. Ruscombe. Waltham. Windsor. Swallowfield, &c.

An extreme form of this is probably the

Var. *DIVERGENS* (Jord. in Schultz, Arch. Fl. Fr. et Allem. 191, as a species of *Odontites*).

This appears to be fonder of lighter soil. I have seen it at Boar's Hill, Kintbury, Mortimer, Hurst, Sindlesham, Maidenhead, &c.

The form *alba* I have seen at Wootton, &c.

Bartsia Odontites is found plentifully in all the bordering counties.

PEDICULARIS, Linn. Gen. n. 664 (Tournefort, Inst. t. 77).

P. palustris, Linn. Sp. Pl. p. 607 (1753). *Marsh Lousewort*, Tall Red Rattle.

P. palustris rubra elatior, Ray, Syn. 162 (1696). *Pedicularis*, Gerard, 913. Top. Bot. 293. Syme, E. B. vi. 178, t. 996. Nyman, 553. Fl. Oxf. 221. Native. Paludal. Peat-bogs, marshes, wet meadows. Locally abundant, especially in the Thames meadows, but absent from considerable areas of the chalk plateau. B. or P. May–September.

First record. Hinksey, *Sir Joseph Banks*, MS. 1770. Published as *Pedicularis palustris*, Dr. Noehden, in *Mavor's Agr. Berks*, 1809.

1. *Isis*. Wytham meadows.
2. *Ook*. Hinksey, *Banks*. Bagley, *Baxter*. West Hagbourn Moor, *Lousley*. Marcham, *Walker*. Tubney. Cothill Moor. Between Abingdon and Cothill. Abingdon Racecourse, abundant.

Meadow between Abingdon and Radley, very luxuriant. Thames meadows near Kennington and Sandford. Frilford. Shippon. Near Didcot. Appleford.

3. Pang. Fence Wood, *W. M. Rogers*. Pangbourn. Mouldsford. Basildon. Near Tilehurst.
4. Kennet. Greenham Common, *Rupert Jones*. Wickham, *Mrs. Batson*. Woodhay and Snelsmore Common, Bagnor Marsh, *Bunny*, in *Russell's Cat.* 1843. Blackhall Bog, near Greenham, *Weaver*. Weston, *Osmond*. Beenham. Newbury meadows. Near Kintbury. Burghfield meadows. Padworth. Aldermaston. Mortimer. Chilton Foliat.
5. Loddon. Grebe Pond, Wellington College, *Penny*. Near Hemerton. Warren Row, *Stanton*. Common in wet meadows, very fine in marshy meadows to the left of the first lane leading from the Henley Road to Sir W. Clayton's, *Mill*. Sonning meadows, *Tufnail*. Coleman's Moor. Risely. Ambarrow. Finchampstead. Long Moor. Wokingham. Bagshot. Easthampstead. Near Wokingham. Bracknell. Meadows near Hurley. Old Windsor. Windsor Park. Sunningdale, &c.

The meadows near Mouldsford and near Hurley I have seen quite crimson from the profusion of this semi-parasitic plant, which I have found attached by suckers (*haustoria*) to the roots of *Carex acutiformis*, *C. riparia*, and *Juncus articulatus*.

Pedicularis palustris is found in all the bordering counties.

P. sylvatica, Linn. Sp. Pl. 607 (1753). *Heath Lousewort*.

P. pratensis purpurea, C. B. Pin. 163.

Top. Bot. 293. Syme, E. B. vi. 179, t. 997. Nyman, 554. Fl. Oxf. 221.

Native. Ericetal. Heaths, dry pastures, grassy rides in woods.

Locally common and widely distributed. B. or P. April-July.

First record. In Bulmarsh, *Mr. S. Rudge*, in *Herb. Brit. Mus.* 1800. Still there in 1895. Bagley Wood, *Mr. Baxter*, MSS. 1812. Included in *Russell's Cat.* 1839.

1. Isis. Wytham. Buckland.
2. Ock. Bagley, *Baxter* MSS. 1812. Marcham, *Walker*. Beyond Childswell Farm, *Thurland*. Besilsleigh. Tubney. Shippon.
3. Pang. Bucklebury. Cold Ash. Oare. Fence Wood.
4. Kennet. Greenham Common, *Rupert Jones*. Mortimer, *Tufnail*. Inkpen. Aldermaston. Padworth. Burghfield. Silchester. Newbury Wash. Crookham. Little Common, Hungerford. Kintbury. Hampstead Marshall. Gibbet Hill, over 900 feet. Snelsmore. Wickham. Bucklebury. Templeton.
5. Loddon. Bulmarsh, *Rudge*. Virginia Water, *Herb. Brit. Mus.* Wellington College, *Penny*. Warren Row, Crazey Hill, Knowl

Hill, Stanton. Sunninghill. Bagshot Heath. Easthampstead. Sandhurst. Ambarrow. Near Jouldern's Ford. Long Moor. Broadmoor. Wokingham. Bracknell. Ascot. Windsor Great Park. Stubbing's Heath. Bowsey Hill. Windsor Park.

A common plant of the heathy portions of the southern part of the county, but from the rarity of this ground in the north necessarily much less frequent in the Isis and Ock districts.

The white-flowered form is rare. I have seen it at Shippon, in Windsor Great Park, at Bracknell, &c.

P. sylvatica occurs in all the bordering counties.

RHINANTHUS, Linn. Gen. n. 658 (*Elephas*, Tourn. Inst. t. 482).

R. Crista-galli, Linn. Sp. Pl. 603 (1753). *Yellow Rattle*.

Crista Galli, Gerard, 912. *Alectorolophus*, Haller, Hist. 137. *Rhinanthus minor*, Ehrh. Beitr. vi. 144, and Index Kewensis.

Top. Bot. 292. Syme, E. B. vi. 180, t. 998. Nyman, 552. Fl. Oxf. 221. Native. Pratal and pascual. Meadows, pastures, heaths, abundant.

A. May-July.

First record. *R. Crista-galli* with *Uredo Rhinanthacearum* (*Coleosporium euphrasiae*, Schum.) about Oxford, Baxt. Phaen. Bot. 259, 1839.

The Yellow Rattle is semi-parasitic upon the roots of grasses, and in dry seasons much retards the growth of grass crops; it is erratic in its occurrence, being abundant in a field one season and rare or absent from it in the next, and one field may be full of it while the adjoining one may be free. I suspect that this may be the Meadow Cow-wheat of Dr. Noehden, in *Mavor's Agr. Berks*, 1809.

Var. *FALLAX* = *Alectorolophus minor*, var. *fallax*, Wimm. et Grab. Fl. Siles. ii. 213. In wet spongy meadows, such as those of the Upper Thames near Wytham and Binsey, and in the Lower Thames near Kennington, Radley, Moulsoford, Hurley, &c., this variety is frequent.

Var. *ANGUSTIFOLIUS* (Koch, Syn. Fl. Germ. 544, 1837), sub *R. minor*, Ehrh. (not of Gmel. Fl. Bad. ii. 669). Near Newbury and in other places I have gathered a narrow-leaved plant which I think must be referred to this form, which is frequent in Scotland.

Rhinanthus Crista-galli is found in all the bordering counties.

MELAMPYRUM, Linn. Gen. n. 660 (Tournefort, Inst. t. 78).

[**M. CRISTATUM**, Linn. Sp. Pl. 605 (1753).

Crested Cow-wheat.

Syme, E. B. vi. 183, t. 1000.

The plant recorded under the above name by Dr. Noehden, from woods, &c., in *Mavor's Agr. Berks*, 1809, is an error for *M. pratense*, which is our woodland plant.

Recorded on dubious authority for South Hants and Bucks.]

[*M. ARVENSE*, Linn. Sp. Pl. 605 (1753).

Purple Cow-wheat.

Syme, E. B. vi. 184, t. 1001.

Recorded by Dr. Noehden, Cornfields frequent, in *Mavor's Agr. Berks*, but undoubtedly an error. Probably *Bartsia Odontites* was intended.]

[*M. SYLVATICUM*, Linn. Sp. Pl. 605 (1753).

Yellow Cow-wheat.

Syme, E. B. vi. 186, t. 1005.

Recorded by Dr. Noehden in *Mavor's Agr. Berks*, from woods and shady places. An undoubted error. Doubtless a small form of *M. pratense* was mistaken for the true *M. sylvaticum*, which is not a native of the midlands.]

M. pratense, Linn. Sp. Pl. 605 (1753).

Cow-wheat.

Crataegonon, Lobel. Ic. 36. ? *M. sylvaticum*, Huds. Fl. Angl. 270, not of Linn.

Top. Bot. 293. Syme, E. B. vi. 184, t. 1002. Nyman, 556. Fl. Oxf. 221.

Native. Sylvestral. Woods, bushy places, and sometimes in open heathy ground exposed to the sun. Local. Absent from considerable areas. A. May-August.

First record. *M. pratense*, Meadow Cow-wheat, Dr. Noehden, *Mavor's Agr. Berks*, 1809.

This may be the *Euphrosine flore albo*. Eyebright, with white flowers near Oxford, Mr. Martin, in [*How's*] *Phyt. Brit.* 40, 1650.

1. Isis. Wytham.

2. Ock. Birch Copse, Thurland. Bagley, Baxter, 1812. Marcham, Walker. Tubney.

3. Pang. Sandy Lane, Hermitage, W. M. Rogers. De La Bere, Pangbourn, Tufnail. Tilehurst. Bradfield. Near Bottom Farm. Ashampstead. Grimsbury Castle. Hawkrigde. Oare. Cold Ash. Ashridge. Oarebury. Fence Wood. Frilsham.

4. Kennet. Newbury, Russell's Cat. In plenty in Beedon Wood and in a wood near Snelsmore Common, W. M. Rogers. Mortimer, Tufnail. Sandleford, Weaver. Weston, Osmond. Greenham. Gibbet Hill. Hampstead Marshall. Inkpen. Templeton. Woodhay.

5. Loddon. It is curious that in so wooded a country... so common a plant as *M. pratense* does not appear to grow, Mill. Maidenhead, Boswell. Wargrave, Britten. Wood near Ford, Penny. Remenham, Warren Row, Crazy Hill, Stanton. Arborfield, Tayler. Bagshot. Sandhurst. Blackwater. Finchampstead. Farley Hill. Spencer's Wood Common. Bracknell. Binfield. Bowsey Hill.

Var. *LATIFOLIUM*, Schueb. & Mart. Fl. Wuert. 401, which appears to gradually merge into the ordinary plant, is not unfrequent in shady woods in the Pang district. I have it from Tidmarsh, Tilehurst, College Wood, Bucklebury, and from Hampstead Marshall, near Templeton, and Hodecott in the Kennet district.

Melampyrum pratense is found in all the bordering counties.

OROBANCHACEAE, Lindl. Nat. Syst. ed. 2, 287 (1836).

OROBANCHE, Linn. Gen. n. 697 (Tournefort, Inst. 81).

[**O. PURPUREA**, Jacq. Enum. Stirp. Vind. 108 (1762). *Purple Broomrape*.

O. caerulea, Vill. Hist. Pl. Dauph. ii. 406 (1736). *Phelypaea coerulea*, C. A. Meyer, Verz. Pfl. Cauc. 104.

Syme, E. B. vi. 192, t. 1009. Error. '*O. caerulea*. Clover-fields near Cookham, through which the footpath leads to Great Marlow, abundant, W. Hurst MSS.,' in *New Bot. Guide*, 1835. The plant was doubtless the purple form of *O. minor*.

O. purpurea occurs in the Isle of Wight.]

O. major, Linn. Sp. Pl. 632 (1753), and Fl. Suec. ed. 2, 219 (not of Smith). *Broomrape*.

O. elatior, Sutton, in Linn. Soc. Trans. iv. 178 (1798), t. 17, f. 4.

Top. Bot. 299. Syme, E. B. vi. 196, t. 1013. Nyman, 560. Fl. Oxf. 222.

Native. Parasitic on the roots of *Centaurea Scabiosa*. Very rare. A. June-August.

First record. *O. elatior*, Mr. H. Reeks, in *Britt. Contr.* 1871.

1. Isis. Near Cumnor.

3. Pang. Bradfield, *J. W. Jenkinson*. [I have not seen specimens.]

4. Kennet. West Woodhay, Kintbury, Eleot, *Reeks*, in *Britt. Contr.* Newbury, *Weaver*.

5. Loddon. Included in the Wellington Coll. List, but the record requires verification.

O. major is recorded for all the bordering counties except Bucks and East Gloucestershire.

O. Rapum-genistae, Thuill. Fl. Par. ed. 2, 317 (1799). *Great Broomrape*.

O. major, Smith, E. B. t. 421 (1797) (not of Linn.). *Rapum Genistae*, Gerard, 1130.

Top. Bot. 298. Syme, E. B. vi. 193, t. 1010. Nyman, 558. Fl. Oxf. 223.

Native. Parasitical on the roots of Broom and Furze. Very rare. A. July-August.

First record. *O. major*, Common Broom-rape, Dr. Noehden, *Mavor's Agr. Berks*, 1809 [but the plant was probably only *O. minor*].

3. Pang. On the banks about Hermitage, by the sides of the long lane near the Gate, *J. Lousley in Russell's Cat.* 1839.

4. Kennet. North end of Snelsmore Common, *Lousley, l. c.* Weston, *Osmond*. Near Curridge Common. Very fine specimens, 1896.

5. Loddon. Wargrave, *J. C. Melvill*.

O. Rapum-genistae is recorded for all the bordering counties except Oxfordshire, but appears to be a decreasing species in Britain.

[**O. PICRIDIS**, F. Schultz, in *Ann. Gew. Regensb.* v. (1830) 504. Syme, E. B. vi. 197, t. 1014. Is recorded for Surrey and the Isle of Wight.]

[**O. HEDERAE**, Duby, Bot. Gall. 350, is given in the Wellington Coll. List, but this is either an error of identification, or it is not from a Berkshire locality. It is recorded from the Isle of Wight, Wilts, and W. Gloucestershire.]

O. Trifolii-pratensis, F. Schultz, in Ann. Gew. Regensb. v. (1830) 500.

O. minor, Sutton, in Linn. Soc. Trans. iv. (1798) 179, and Sm. E. B. t. 422 (1797), not of Thunberg, Prod. Fl. Capensis, 97 (1794).

Top. Bot. 299. Syme, E. B. vi. 199, t. 1016. Nyman, 562. Fl. Oxf. 223. Native. Agrestal. Parasitical on Clover, &c. Locally common. A. June-October.

First record. *O. minor*, in a clover field near Buckland, Dr. Williams [Prof. of Botany in Oxford], in *Purt. Midl. Fl. App.* 56, 1821.

1. Isis. Buckland, not rare, Dr. Williams' MS. 1820. Longworth.

2. Ock. Marcham, Walker, as *O. Hederæ*. Hinksey Hill, Roswell. Between Bagley Wood and Sandford, Lawson, in *Herb. Oxf.* Frilford. Cot. hill. Pusey. Near Wallingford. Kingston Bagpuze. Didcot. Southmoor. Shippon.

3. Pang. Moultsford. Near Hermitage. Near Bucklebury. Purley. Near Marlstone House. Pangbourn. Fields near Langley Hall.

4. Kennet. Common in Clover fields, Russel's Cat. Mortimer, Tufnail. Wickham, Mrs. Balson. Theale, Tufnail. Padworth. Newbury. Greenham. Kintbury. Brimpton.

5. Loddon. In a clover field near Cookham through which the footpath leads to Great Marlow, Hurst MSS. as *O. caerulea*. In the Common field opposite Bisham Wood. In a field above Cookham, Mill. Common about Park Place, Stanton. Wellington College, Penny. Windsor, Dyer. Bisham, Chandler. Maidenhead. Wargrave. Hurley. Sonning. Arborfield. Barkham.

VAR. FLAVESCENS? *O. minor*, var. *flavescens*, Gren. & Godr. Fl. Fr. ii. 641. I see no other difference than colour in our specimens. Near Langley on *Crepis virens*. At Didcot on *Daucus Carota*.

'A form which occurs . . . near Pangbourne is a much larger plant than the ordinary *O. minor*, often two feet high, with the corolla more curved, the curvature greatest near the middle; the lips much longer in proportion, and the middle segment of the lower lip conspicuously larger than the others,' Syme, E. B. vi. 200. A specimen from E. Forster is in *Herb. Brit. Mus.*

Although usually occurring on Clover, I have seen *O. Trifolii-pratensis* on *Crepis virens* at Moultsford and near Oarebury, and on *Cnicus arvensis* at Brimpton.

O. Trifolium-pratensis is recorded for all the bordering counties.

LATHRAEA, Linn. Gen. n. 661 (*Candestina*, Tourn. Inst. t. 424).

L. Squamaria, Linn. Sp. Pl. 606 (1753). *Toothwort*.

Squamaria, *Lonicerus*.

Top. Bot. 301. Syme, E. B. vi. 189, t. 1006. Nyman, 562. Fl. Oxf. 223. Native. Sylvestral. In shady damp woods. Parasitical on roots of Hazel and other shrubs. Very local. A. March-May.

First record. In the parish of Kintbury . . . in a wood called Irish Hill, about a mile to the north of the village by the river's side, Dr. Lightfoot's, MS. 1769.

1. **Isis.** Copse close to Cumnor Hill, Dr. Williams' MSS. 1820. [In this locality it is still plentiful.] Near Pusey and Buckland, Boswell.

4. **Kennet.** Kintbury, as above, Lightfoot. In 1896 I found the *Lathraea* in the same wood, but sparingly and not in very good condition; it flowered about ten days later than the Cumnor plant.

A MS. note in the Botanic Garden Library shows that the plant from Irish Wood was at first thought to be '*Limodorum Austriacum*,' by the Rev. — Fowle of Kintbury and Mr. Lemoult of Dorchester; but Dr. Lightfoot proved it to be *Lathraea*, which is found in all the bordering counties.

PINGUICULACEAE, Dumort. Anal. Fam. 19 (1829).

Lentibulariaceae, Lindl. Nat. Syst. ed. 2, 286 (1836).

UTRICULARIA, Linn. Gen. n. 29 (*Lentibularia*, Vaill.).

U. vulgaris, Linn. Sp. 18 (1753). *Bladderwort*.

Top. Bot. 332. Syme, E. B. vii. 126, t. 1125. Nyman, 598. Fl. Oxf. 241. Native. Lacustral. Slow streams, ditches, ponds, and canals, preferring stagnant water. Local. P. July-August.

First record. *Millefolium palustre galericulatum*, Ger. *Flore luteo galericulato*, Lob. Hooded water Milfoile about Oxford, [How's] *Phyt. Brit.* 76, 1650. Also given in *Coles' Adam in Eden*, 556, 1657, and as *Utricularia vulgaris* by Mr. Bicheno in *Mavor's Agr. Berks*, 1809.

1. **Isis.** About Oxford, *Phyt. Brit.*, *Coles*, &c. Bablock Hythe, Boswell. In the Wytham meadows.
2. **Ock.** Ditches by the Devil's Back-bone going to South Hinksey, *Baxter in Walk. Fl.* Ditches near the towing-path between Oxford and Iffley. In the pools, on the south side of the Abingdon road, opposite the Paper Mill, just before you come to the road leading to Kennington, 1839, *Baxt. Phaen. Bot.* n. 349. Ponds by the railway, between Culham Station and the crossing to Appleford, abundant. Near Sandford, on the Berkshire side of the river, in ponds and ditches. Near Kennington.
3. **Pang.** Ditches, Caversham meadows, in flower, 1896, *Tufnail*.
4. **Kennet.** Southcote. Newbury. Hampstead Marshall.
5. **Loddon.** Dunstan Green, Sonning, *Rudge, Herb. Brit. Mus.* In

the pond at the foot of Cookham Down, *Mill*. Near Wargrave, Stanton. Hurley, *G. D. Leslie*. By the Thames, in a marsh near Old Windsor, in good flower, 1895.

Utricularia vulgaris is recorded for all the bordering counties except E. Gloucestershire.

[*U. INTERMEDIA*, Hayne, in Schrad. Journ. i. (1800) 18, t. 5, and Roth. Cat. 1800, f. ii.

Syme, E. B. vii. 128, t. 1127. Is recorded with certainty for South Hants only of the bordering counties, as the record for Bucks requires confirmation.]

U. major, Schmidel, Ic. Pl. ed. Bisch. 80, 21 (1793-7), and Index Kew.

U. neglecta, Lehm. Ind. Schol. Hamb. (1828) 38.

Top. Bot. 332. Syme, E. B. vii. 127, t. 1125 bis, bad figure. Nyman, 598. Native. Paludal and lacustral. Still ponds and canals. Very local.

P. July.

First found in Berkshire by the author in 1891.

2. **Ock**. In the water at Cothill Marsh, flowering in 1895 and 1896.

4. **Kennet**. In the Kennet Canal at Hampstead Marshall and at Newbury, only seen in the barren state.

5. **Loddon**. Near Sandhurst Military College.

U. major is recorded for Surrey and Hants only of the bordering counties.

U. minor, Linn. Sp. Pl. 18 (1753). *Lesser Hooded Milfoil*.

Lentibularia minor, Petiver, Herb. Brit. t. 36.

Top. Bot. 332. Syme, E. B. vii. 128, t. 1126. Nyman, 598. Fl. Oxf. 242.

Native. Lacustral. Pools in leathy situations. Very rare. P. July.

First recorded for Berkshire by the author in *Rep. of Bot. Rec. Club*, 1886.

2. **Ock**. Cothill Marsh, in the pools.

5. **Loddon**. Near Sandhurst Military College.

U. minor is only reported from Surrey and Hants of the bordering counties; but I have found what is probably this plant in a floating barren state in Worcester College Pond, Oxford.

PINGUICULA, Linn. Gen. n. 28 (Tournefort, Inst. t. 74).

P. vulgaris, Linn. Sp. Pl. 17 (1753). *Butterwort*.

Pinguicula Gesneri, J. Bauhin, Hist. iii. 546.

Top. Bot. 330. Syme, E. B. vii. 123, t. 1121. Nyman, 598. Fl. Oxf. 242.

Native. Uliginal. Peaty bogs. Very local. Apparently absent from the Pang, Kennet, and Loddon districts; but it is difficult to suggest a reason for its not occurring in the extensive bogs which are to be found in them. P. May-July.

First record. *Pinguicula sive Sanicula Eboracensis*. Plentiful about Oxford, *Merrett's Pinax*, 94, 1666.

2. **Ock**. In some boggy places about West Hagbourn, but not very plentiful, *Lousley* in *Russell's Cat.* 1839. Near Great Oakley

House, *F. Smith, Britten in Journ. Bot.* (1873) 139. [Probably Mr. Britten meant F. Walker.] Boar's Hill. Frilford. Cothill. Near Shippon. Near Tubney. Marsh near Kennington.

P. vulgaris is recorded for all the bordering counties except Wilts and Surrey.

VERBENACEAE, Juss. Ann. Muss. v. 254 (1804).

VERBENA, Linn. Gen. n. 30 (Tournefort, Inst. t. 94).

V. officinalis, Linn. Sp. Pl. 20 (1753). *Vervain*.

V. communis caerulea flore, C. B. Pin. 269.

Top. Bot. 302. Syme, E. B. vi. 202, t. 1018. Nyman, 563. Fl. Oxf. 224. Native. Viatical. Dry gravelly waysides, pastures, &c. Local. More frequent on calcareous soil in sunny situations. P. July-October. First record. Sonning, *Mr. S. Rudge*, 1800, in *Herb. Brit. Mus.* Published as *V. officinalis* in *Mavor's Agr. Berks*, 1809.

1. **Isis.** About Oxford, *Baxt. Phaen. Bot.* n. 26. Carswell, *Miss M. Niven*. Near Pusey.
2. **Ock.** Marcham, *Walker*. Bagley, *Baxter MSS.* 1823. Abingdon Road. Between Didcot and Upton, *Sister Jane Frances*. Common at Blewbury, *Lousley in Russell's Cat.* Wittenham, *F. W. Bennett*. Besilsleigh. Uffington. Wantage. Cothill. Abingdon. Dry Sandford. Blewbury. Didcot. Hagborne. Shippon.
3. **Pang.** Common at Hampstead Norris, *Lousley, l. c.* Itchenswell, and near Bucklebury Parsonage, *Dr. Bunny, l. c.* Streatley, *Pamplin*. Ilsley, *Belamy*. Tidmarsh. Bradfield. Moulsoford. Pangbourn. Tilehurst. Ashampstead. Purley. Sulham. Rather common in this district.
4. **Kenet.** Chieveley, *W. M. Rogers*. Wickham, *Mrs. Batson*. West Ilsley. Lambourn. Newbury. Wash Common. Hampstead Marshall. Hungerford. Inkpen. Beenham. Silchester. Between Newbury and Cold Ash. Southcote. Theale.
5. **Loddon.** Wellington College, *Penny*. Swallowfield. Shinfield, *Tufnail*. Frequent, Craze Hill. Aston Lane. Wargrave, *Stanton*. Hurst. Early. Knowl Hill. Stubbing's Heath. Hurley. Clewer. Maidenhead. Bray. Near Loddon Bridge. Sonning. On chalk ballast near Reading.

Verbena officinalis is found in all the bordering counties.

LAMIACEAE, Lindl. Nat. Syst. ed. 2, 275 (1836).

LABIATAE, Juss. in Hort. Trianon (1759).

MENTHA, Linn. Gen. n. 633 (Tournefort, Inst. t. 89).

[**M. ROTUNDIFOLIA**, Huds. Fl. Angl. 221 (1762).

Top. Bot. 303. Syme, E. B. vii. 4, t. 1020. Is recorded for Bucks, Surrey, Hants, Wilts, and Gloucestershire.]

****M. ALOPECUROIDES**, Hull, Brit. Fl. i. 126 (1799).

Top. Bot. 304. Syme, E. B. vii. 5, t. 1021. Nyman, 595.

Alien. Some specimens occurred near the Abingdon Canal, between Abingdon and Marcham, but they owed their origin to a garden.

M. longifolia, Huds. Fl. Angl. l. c. (1762). *Horse Mint*.

M. spicata, var. *b*, Linn. Sp. Pl. 576 (1753). *M. sylvestris*, Linn. Sp.

Pl. ed. 2, 804 (1762). *M. sylvestris longiore folio*, C. B. Pin. 227.

Top. Bot. 304. Syme, E. B. vii. 6, t. 1022. Nyman, 595. Fl. Oxf. 238.

Native. Septal. Hedges in marshy situations. Very rare. P. August-September.

First certainly recorded for Berkshire by the author in this *Flora*.

2. **Ock**. Abundantly in bushy places, along a marsh between Dry Sandford and Abingdon in great abundance. Native.

4. **Kennet**. Evidently the remains of cultivation near an empty cottage, near West Ilsley. Mr. Osmond gives it in his list of Weston plants, but I have not seen specimens.

Mem. In *Russell's Catalogue*, 1839, Mr. Lousley says that *M. sylvestris* occurs in the ditches and damp pastures about Blewbury. The Mints were not very critically known by most botanists at that time, and there is very little doubt that Mr. Lousley mistook a form of *M. aquatica* for this rarer species. I have only seen it in the above localities in the county.

It is on record for all the bordering counties.

[**M. PUBESCENS**, Willd. Enum. Hort. Berol. 608, is recorded for Gloucestershire.]

***M. SPICATA**, Huds. Fl. Angl. 221 (1762). *Spear Mint*.

M. spicata, var. *viridis*, Linn. Sp. Pl. 576 (1753). *M. viridis*, Linn. Sp. Pl. ed. 2, 804 (1762).

Syme, E. B. vii. 7, t. 1023. Nyman, 596. Fl. Oxf. 238.

Alien or casual. Waste places. Rare. P. August-September.

First record. *M. viridis*, Mr. Bicheno in *Mavor's Agr. Berks*, 1809.

2. **Ock**. By the canal near Bugg's Mill near Abingdon, *Whitwell*. Near Pusey. On waste ground near Grandpont.

8. **Pang**. In the orchard at Hampstead Norris, *Lousley in Russell's Cat*.

On waste ground near Newbury.

5. **Loddon**. Near Twyford.

Knowl Hill. Waste ground near Windsor.

M. spicata is found in a more or less naturalized condition in all the bordering counties.

M. piperita, Huds. Fl. Angl. 222 (1762). *Peppermint*.

M. piperita acuta, Pet. Herb. Brit. t. 31. *M. piperita*, Linn. Sp. Pl.

576 (1753), according to Index Kewensis; but Withering says the

Linnean *M. piperita* is a form of *M. aquatica* and the specimen in the Linnean Herbarium is a cultivated form of *M. aquatica*.

Top. Bot. 305. Syme, E. B. vii. 9, t. 1024-5. Nyman, 596. Fl. Oxf. 238.

Native or denizen. Paludal. Pond-sides, wet places. Very rare. P.

August-October.

First record. *M. piperita*. Watery places, Dr. Noehden, *Mavor's Agr. Berks*, 1809. (This record may possibly be correct, but there is great probability of its referring to a form of *M. aquatica*. Mr. J. Lousley, in *Russell's Catalogue*, says it occurs in some of the wet pastures in the Vale, which is even less probable than the preceding record. Precisely recorded by Mr. W. T. Dyer in 1867 as follows:—

2. Ock. Sub-spontaneous on Boar's Hill, *Rep. of Lond. Bot. Exch. Club*, 1867, as the var. *VULGARIS*, Syme, l. c. Mr. Boswell found it in the same place in 1861 and 1866. Uffington, by a pond-side, *Bellamy*. By a small stream near Cothill as the var. *OFFICINALIS*, Sole, *Menth. Brit.* 19, t. viii. (1798).

5. Loddon. By the roadside, opposite Highfield Farm, Wargrave, possibly a garden escape, *Stanton*.

M. piperita is recorded for Oxfordshire, Surrey, Wilts, East Gloucestershire, and the Isle of Wight.

M. aquatica, Linn. Sp. Pl. 576 (1753), not of Herb. *Hairy Mint*.

M. hirsuta, Huds. Fl. Angl. 223 (1762). *M. piperita*, Linn. Herb.

Top. Bot. 306. Syme, E. B. vii. 13, t. 1030. Nyman, 596. Fl. Oxf. 239. Native. Paludal. Sides of rivers, brooks, canals, and ponds, in ditches, marshes, and wet places. Very common and widely distributed. Our commonest species of Mint. P. August–October.

First record. *Horse mint*, near Hungerford, *Spencer's Complete British Traveller*, 1771. Sonning, Mr. S. Rudge, in *Herb. Brit. Mus.* 1800.

M. hirsuta, Dr. Noehden, *Mavor's Agr. Berks*, 1809.

M. aquatica is a variable species. One of our commonest forms, which is found in all the districts, is the var. *SUBGLABRA* (Baker, sub *M. hirsuta*). This is very common by the Thames, and when growing in a rich marsh with other vegetation attains a height of five feet.

Var. *AFFINIS* (Boreau, Fl. Centre Fr. ii. 509, as a species). *M. intermedia*, Host, not of Nees, Beck, or Opiz. The Abbé Strail so named for me a mint which grows by the reservoir at Didcot, see *Rep. of Bot. Exch. Club*, 342, 1891, and which bears much resemblance to *M. piperita*, var. *vulgaris*.

Var. *ORTMANNIANA* (Opiz, *Natural.* xi. (1826) 437, as a species). This form which is near to, but not so glabrous as, *M. affinis*, Bor., occurs at South Hinksey.

Var. *PEDUNCULATA* (Pers. Syn. ii. 119, as a species), Wirtg. *Menth. Rhen.* ii. No. 29. I have found it near Abingdon, Cumnor, &c.

M. aquatica occurs in all the bordering counties.

M. verticillata, Huds. Fl. Angl. 222 (1762), and of Rivinus, not of Linn. Syst. ed. 10, 1099 (1759) (which is *M. arvensis*, Linn.).

M. sativa, Linn. Sp. Pl. ed. 2, 805 (1762), and Herb.

Top. Bot. 306. Syme, E. B. vii. 15, t. 1031. Nyman, 596. Fl. Oxf. 239.

Native. Paludal. Margins of rivers, canals, brooks, ditches, and ponds, and in marshes, &c. Common and widely distributed. P. July-October.

First record. *M. sativa*. Near Wargrave, Mr. J. C. Melvill in *Britt. Contr.* 1871.

Under *M. verticillata* are included a large number of forms. Syme described three varieties under *M. sativa*, as var. *rivalis*, var. *paludosa*, and var. *subglabra*, Baker.

Var. *RIVALIS* (Sole, *Menthae* Brit. 45, t. 20 (1798), as a species).

This variety, as defined by Syme and figured in Sole, is found frequently in all our districts, and by the Thames is probably the commonest form.

Var. *PALUDOSA* (Sole, *Menthae* Brit. 49 (1798), as a species).

This form is rather more frequent than the former in the heathy districts, but there are many modifications of it. Some of the forms to be seen in the Wokingham district are worth further study. In 1894 I sent a large series of them to M. Buser of Geneva for M. Briquet's opinion, but I have been unable to elicit any reply to my communications from either botanist.

1. *Isis*. Wytham. South Hinksey. 2. *Ock*. South Hinksey.

Appleford, in the ponds near the railway. Marcham. 3. *Pang*. Streatley. Basildon. 4. *Kennet*. Hungerford. Aldermaston. Inkpen. Kintbury. 5. *Loddon*. Barkham. Wokingham. Long Moor. Bearwood. Hurst. Windsor Park. Bracknell. Sandhurst.

Var. *SUBGLABRA* = *M. sativa*, var. *subglabra*, Baker, *Journ. Bot.* (1865) 248. This is a scarcer form which I have seen by the Upper Thames near Bablock Hythe and near Ferry Hinksey.

In addition to the foregoing, there are among the varieties I put under *M. verticillata* the following, which have been determined for me by the Abbé Strail :—

Var. *CRENATA* (Becker, *Fl. Fr.* i. 225, as a species), which I have from near Abingdon and Godstow. It is put under *M. arvensis* in *Index Kewensis*.

Var. *ARGUTA* (Opiz, *Natural.* viii. (1824) 69, as a species), a pretty form from Aldermaston and Wokingham. Also given under *M. arvensis* in *Index Kewensis*.

Var. *BENESCHINA* (Opiz, ex Déségl. in *Bull. Soc. Sc. Angers* (1882) 206, as a species), near Caversham and from Wytham. Treated as a distinct species in *Index Kewensis*.

M. verticillata occurs in all the bordering counties.

M. rubra, Sm. in *Linn. Soc. Trans.* v. (1800) 205, not of Huds. (which is *M. gentilis*) nor of Miller. *M. sativa*, Sole, not of Linn.

Syme, *E. B.* vii. 16, t. 1033. Nyman, 597. *Fl. Oxf.* 240.

Native. Paludal. Wet places Very rare. P. August.

First record. Sonning, *Mr. S. Rudge in Herb. Brit. Mus.* 1800.

5. Loddon. Sonning, as above, but I have not seen this plant in Berkshire.

M. rubra is recorded for Surrey, Hants, Gloucestershire, and with a good deal of doubt from Bucks and Oxfordshire.

**M. cardiaca*, Baker in *Journ. Bot.* iii. (1865) 245, and of Ger. 680.

M. gentilis, Sole, t. 15. E. B. t. 449. Syme, E. B. vii. 18, t. 1035. Fl. Oxf. 240.

Denizen. Waste places. Rare. P. August–September.

First found by the author in the county in 1889.

2. Ock. On waste ground at Grandpont, now built over.

M. cardiaca, which in most cases is an escape from cultivation, appears to be a native of Oxfordshire.

[*M. GRACILIS*, Sole, *Menthae Brit.* 37 (1798). Syme, E. B. vii. 17, t. 1034. Is recorded for Wiltshire by Sole.]

[*M. PRATENSIS*, Sole, l. c. 39 (1798). Syme, E. B. vii. 18, t. 1036. Sole found this in wet places in the New Forest, particularly in Alderbury Common, near the Roebuck, between Salisbury and Romney, but it has not since been gathered in Britain.]

[*M. GENTILIS*, Linn. Sp. Pl. 577 (1753). Syme, E. B. vii. 19, t. 1037. Is recorded with some doubt from Surrey.]

M. arvensis, Linn. Sp. Pl. 577 (1753). *Field Mint*, *Corn Mint*.

Calamintha arvensis verticillata, C. B. Pin. 229.

Top. Bot. 306. Syme, E. B. vii. 21, t. 1038–40. Nyman, 597. Fl. Oxf. 240.

Native. Agrestal. Damp cornfields, heaths, river-sides, wet places.

Not uncommon and widely distributed. P. July–October.

First record. In gravelly and sandy soils, as . . . Windsor Forest, this plant is not above 6 or 7 inches high, Sole, *Menthae Brit.* 30, 1798.

The aggregate species is too common to need a detailed list of localities.

A large number of varieties have been described, and to some of them specific rank has been given.

Var. *HOSTII* (Boreau, Fl. Centr. Fr. ed. 3, ii. 512, as a species), is a rather frequent form. I have it from Longworth, Hagborne, Marcham, Dicot, Hermitage, &c.

Var. *NUMMULARIA* (Boreau, l. c., as a species, not of Schreber). Theale, Fence Woods.

Var. *PARIETARIAEFOLIA* (Steud. Nom. ed. 2, ii. 127, as a species), Reichb. Ic. Pl. Crit. x. 1300. Near Sandford.

Var. *AGRESTIS* (Sole, l. c. 33 (1758), as a species), occurs in cornfields near Radley.

Var. **PRAECOX** (Sole, l. c. 31 (1798), as a species); under this I place some intermediate forms or hybrids of *M. sativa*, which are found occasionally, as by the Thames and Kennet.

For a critical account of this extremely variable and difficult genus the *Essai de Classification et Descriptions des Menthes qu'on rencontre en Belgique*, by the Abbé Strail, should be consulted. I am indebted to the venerable Abbé for kindly naming many of my specimens.

M. arvensis, as an aggregate species, is found in all the bordering counties.

M. Pulegium, Linn. Sp. Pl. 577 (1753). *Pennyroyal*.

Pulegium, Fuchs, Hist. 199.

Top. Bot. 307. Syme, E. B. vii. 23, t. 1041. Nyman, 597. Fl. Oxf. 240.

Native. Inundatal. Pond-sides, wet heaths, margins of heathy pools, &c. Rare. P. July–October.

First record. *Pennyroyal*, in the watery places near the confluence of the Ocke and Lambourne, *Spencer's Complete British Traveller*, 1771.

There is some mistake here; perhaps the Kennet, not the Ock, was intended. *M. Pulegium* is definitely recorded in the *Bot. Guide*, 1805.

3. **Pang**. Tilehurst Common, near the Workhouse, *Fardon in Bot. Guide*.

4. **Kennet**. Near the confluence of the Lambourn and the [Kennet], *Spencer*. Burghfield Common, by the Old Fishpond, *Tufnail*. By a pond on Newbury Wash Common. By a pond on Mortimer Common. Our plant is the decumbent form, var. **DECUMBENS**, Syme, l. c.

Mentha Pulegium is recorded for all the bordering counties, but it is very rare in Oxfordshire.

LYCOPUS, Linn. Gen. n. 31 (Tournefort, Inst. t. 89).

L. europaeus, Linn. Sp. Pl. 21 (1753). *Gipsy-wort*, *Water Horehound*.

Top. Bot. 303. Syme, E. B. vii. 2, t. 1019. Nyman, 597. Fl. Oxf. 241.

Native. Paludal. Sides of rivers, canals, ponds, and ditches, and in boggy places in woods. Common and generally distributed, especially in the low-lying districts. P. June–September.

First record. *Lycopus Europaeus*, Mr. Bichenor. Gypsies stain their faces with it, *Mavor's Agr. Berks*, 1809.

Particularly luxuriant by a small stream near Pebble Hill, Kintbury. *Lycopus* is found plentifully in all the bordering counties.

ORIGANUM, Linn. Gen. n. 645 (Tournefort, Inst. t. 64).

O. vulgare, Linn. Sp. Pl. 590 (1753). *Wild Marjoram*.

Origanum Anglicum, Gerard, 541.

Top. Bot. 307. Syme, E. B. vii. 29, t. 1045. Nyman, 592. Fl. Oxf. 237.

Native. Glareal. Dry sunny banks, chalky and limestone pastures. Abundant over the greater part of the chalk soils, rare on the limestone, but absent from considerable areas of the county. P. July-September.

First record. Sonning, *Mr. S. Rudge in Herb. Brit. Mus.* 1800. Published by Dr. Noehden in *Mavor's Agr. Berks*, 1809.

2. Ock. In the meadow called Bride House at Blewbury, *Lousley*, in *Russel's Cat.* Marcham, *Walker*. Uffington. Radley. King Standing Hill. Wantage. Lockinge.
3. Pang. Very common on dry banks at Hampstead Norris, *Lousley*, l. c. Near E. Ilsley, *W. M. Rogers*. Streatley, *Pamplin*. King Standing Hill. Ashampstead. Sulham. Basildon. Moultsford. Pangbourn. Tilehurst. Yattendon.
4. Kennet. Near Hampstead Norris, and *f. alba*. Ufton. Mortimer, *Tufnail*. Lambourn. West Ilsley. Wickham.
5. Loddon. Sonning, *Rudge*. Wargrave, *Melville*. Common about Park Place, *Stanton*. By the railway near Wellington College. Hurley. Very abundant and fine in Wargrave Chalk Pit. On chalk rubble near Reading. Maidenhead. Bisham.

A handsome form with larger purple bracts and with purplish leaves which occurred at Hurley, approaches var. *prismaticum*, Gaud. Fl. Helv. iv. 78, and is nearer that plant than the specimens from Carisbrooke Castle, which were distributed through the Bot. Exch. Club in 1888, as *O. megastachyum*, Link, Enum. Hort. Berol. ii. 114.

The flowers are much visited by bees and butterflies.

Origanum is recorded for all the bordering counties.

THYMUS, Linn. Gen. n. 646 (Tournefort, Inst. t. 93).

T. Serpyllum, Linn. Sp. Pl. 590 (1753). *Wild Thyme*.

Serpyllum vulgare, Gerard. 455.

Top. Bot. 307. Syme, E. B. vii. 26, t. 1043. Nyman, 593. Fl. Oxf. 238. Native. Pascual. Pastures, heaths, commons, roadsides, chalk downs, &c. Locally abundant. P. June-September.

First record. *T. Serpyllum* [*Serpyllum*], *Mavor's Agr. Berks*, 1809.

This species is too frequent to need localities being given. It ascends to the top of Gibbet Hill, 955 feet in elevation.

It varies greatly in the hairiness of the leaves and in the size of the flowers, which are occasionally white in colour.

Thymus Serpyllum is found in all the bordering counties.

T. Chamaedrys, Fries, Nov. Fl. Suec. ed. 1, 35 (1814-23). *Wild Thyme*. Comp. Cyb. Br. 545. Syme, E. B. vii. 27, t. 1044. Nyman, 593. Fl. Oxf. 237. Native. Pascual. Heaths, bushy places, pastures, &c. Locally common. P. July-September.

First record. Wytham, Mrs. Westwood in Herb. Druce, 1838.

1. **Isis.** Wytham, Westwood. Cumnor. Faringdon. Coleshill. Longworth.
2. **Ock.** Boar's Hill. Cumnor. Besilsleigh. Sunningwell. Wittenham. Cothill.
3. **Pang.** Hermitage and Cold Ash Common, W. M. Rogers. Sulham, Tufnail. Bucklebury. Oare. Curridge. Bradfield. Basildon.
4. **Kennet.** Aldermaston. Burghfield. Greenham. Snelsmore. Wickham. Inkpen. Sulhampstead.
5. **Loddon.** Wargrave, Melvil, 1871. Sonning. Bearwood. Hurley. Bisham. Cookham. Stubbing's Heath.

T. Chamaedrys is recorded for all the bordering counties except East Gloucestershire, in which county I have seen it near Fairford.

CALAMINTHA, Lam. Fl. Fr. ii. 393 (1778)¹, (Tournefort, Inst. t. 92).

C. Clinopodium, Spenn. Handb. ii. 429 (1836). *Wild Basil.*

C. vulgaris, mihi, not of Clairv. *Clinopodium vulgare*, Linn. Sp. Pl. 587. *Melissa Clinopodium*, Benth. Lab. 392. *Acynos*, Gerard, 548.

Top. Bot. 310. Syme, E. B. viii. 31, t. 1047. Nyman, 587. Fl. Oxf. 235. Native. Septal. Hedges, banks, bushy places, wood-borders, more frequent on calcareous soils, but not restricted to them. Rather common and too widely distributed to need special localities being given. P. July–September.

First record. '*Clinopodium* . . . I heare saye that it groweth . . . about Oxford. It may be called in englishe horse Tyme because it is like Great Tyme,' Turner's *Names of Herbes*, 1548².

C. Clinopodium occurs in all the bordering counties.

C. arvensis, Lam. Fl. Fr. ii. 394 (1778). *Common Basil Thyme.*

C. Acinos, Clairv. Man. 197 (1811). *Thymus Acinos*, Linn. Sp. Pl. 591. *Acinos*, Fuchs. *Clinopodium Acinos*, Kuntze Rev. Gen. Pl. 513 (1891).

Top. Bot. 308. Syme, E. B. vii. 32, t. 1048. Nyman, 588. Fl. Oxf. 236. Native. Agrestal. Dry sandy and calcareous fields, dry banks and roadsides. Local. A. or B. June–October.

First record. *Calamint*. This grows upon Hinksey and Botley Hills, MS. in Lyte's *Herball*, 1660. *Thymus Acinos*, Mr. Gotobed in *Bot. Guide*, 1805, and Dr. Noehden in *Mavor's Agr. Berks*, 1809.

1. **Isis.** Carswell, Miss M. Niven. Cumnor.
2. **Ock.** Hinksey and Botley Hills, MS. in Lyte. On the Ridgeway, Whitwell. Marcham, Walker. Railway-side, Denchworth, Wait. Tubney. Boar's Hill. On a wall-top at Ferry Hinksey. Blewbury. Challow. Wantage. Lowbury. Chilton.

¹ See also Adans. Fam. ii. 192.

² Figured and described in Turner's *Herbal* (1568).

3. **Pang.** Streatley, *Pamplin*. Westbrook, *W. M. Rogers*. De la Bere, Pangbourn, *Tufnail*. Moulsoford. Curridge Common. Hermitage. East Ilsley. Compton. Sulham. Bucklebury. King Standing Hill. Rather common in this district.
4. **Kennet.** Between Beedon and E. Ilsley, *W. M. Rogers*. Wickham, *Mrs. Batson*. Theale. Lambourn. Abundant in fields near the Ridgeway and near Letcombe Castle. Near Catmore and West Ilsley. Newbury.
5. **Loddon.** Near Wickham, *Gotobed* in *Bot. Guide* (doubtful if Wickham Bushes, Wickham near Newbury, or Wycombe, Bucks). Cornfields frequent (near Marlow), *Mill*. Starve-all Farm, *Penny*. Remenham. Aston Lane. Round Hemerton, *Stanton*. Wargrave, *Melville*. Near Maidenhead. Bisham. Bray. Sonning Hill. Arborfield, &c. A white-flowered form was seen in fields near High Standing Hill.

C. arvensis is recorded for all the bordering counties.

C. parviflora, Lam. Fl. Fr. ii. 396 (1778). *Lesser Calamint*.

C. Nepeta, Savi, Fl. Pis. 197 (1798). *Me'issa Nepeta*, Linn. Sp. Pl. 593 (1753), but not of Herb. *Thymus Nepeta*, Sm. Fl. Brit. ii. 642, et E. B. t. 1414. *Clinopodium Nepeta*, Kuntze, l. c.

Top. Bot. 309. Syme, E. B. vii. 33, t. 1049. Nyman, 588. Fl. Oxf. 236. Native. Glareal. Dry hedge-banks and grassy slopes on calcareous or gravelly soil. Very local and rather rare. P. August-October.

First record. *Thymus Nepeta* in *Mr. Baxter's MSS.* 1812. See *Walk. Fl. Oxf.* 1833, and *Baxt.* By the side of the Abingdon Road, before the top of the hill is reached, and near Abingdon in a rough grassy field, and by a road between Abingdon and Radley. Specimens of *C. parviflora* were sent by me from Bagley to the *Bot. Rec. Club* in 1886.

2. **Ook.** Bank on the side of the Abingdon Road going through Bagley Wood.

'*Thymus Nepeta*' is given unlocalized by Mr. T. B. Flower in *Robertson's Env. of Reading*, 1843, but this record cannot be admitted until verified. In the *Botanists' Guide* it is recorded from 'roadside near Wickham by *Mr. Gotobed*,' 1805, which again requires verification. There is a doubt as to the locality itself. It may refer to Wickham Bushes in the Loddon district, or to Wickham in the Kennet district, or possibly to Wycombe in Buckinghamshire.

Mr. J. Lousley records in *Russell's Catalogue*, 1839, *C. Nepeta* on the chalky poor soil at Hampstead Norris and Blewbury. Probably *C. arvensis* was intended.

The species is often confused with *C. montana*, from which it may be known by its bluish unspotted, not purple flowers; by the shorter hairs on calyx teeth; by the hairs in calyx throat being enclosed, not protruding; by the

smaller leaves; and by the flower pedicels being ascending, and not bent downwards.

C. parviflora is found in Oxfordshire, and has been reported from Surrey, Hants, and Wilts.

C. montana, Lam. Fl. Fr. ii. 396 (1778). *Common Calamint.*

C. Calamintha. *C. officinalis*, Moench, Meth. 409. *C. menthaefolia*, Host. Austr. ii. 129. *Melissa Calamintha*, Linn. Sp. Pl. 593 (1753). *Thymus Calamintha*, Sm. E. B. t. 1676. *Clinopodium Calamintha*, Kuntze, l. c. Top. Bot. 310. Syme, E. B. vii. 34, t. 1050. Nyman, 588. Fl. Oxf. 231. Native. Viatical. Dry roadsides and hedge-banks, with sunny exposure, usually on gravelly soil or on limestone. Local and rather uncommon. P. July–October.

First record. *C. officinalis*, Mr. G. G. Mill in *Phyt.* i. 992, 1843.

1. Isis. Cumnor, Boswell.

2. Ock. Marcham, Walker. Kingston Bagpuze. Cothill and Dry Sandford. Near Abingdon. Near Fyfield. Wootton. Near Uffington. Frilford.

3. Pang. By the railway near Streatley.

5. Loddon. Borders of Bisham Wood at the top of the hill, Mil. Park Place, Stanton. Wargrave, Melvill.

In the dry seasons of 1893 and 1894 the plant the plant a conspicuous object along the road from Oxford to Faringdon.

Var. **BURGESSII** (Syme, l. c. of *C. menthaefolia*) appears to be only a form of the type to which it is joined by a series of intermediate forms. It has been seen near Cothill, &c.

C. montana (*officinalis*) is recorded for all the bordering counties.

MELISSA, Linn. Gen. n. 647 (Tournefort, Inst. t. 91).

***M. OFFICINALIS**, Linn. Sp. Pl. 592 (1753). *Balm.*

Melissa, Dodoens. *M. hortensis*, C. B. Pin. 229.

Comp. Cyb. Br. 546. Syme, E. B. vii. 37, t. 1053. Nyman, 587. Fl. Oxf. 235. Alien or denizen. Hedge-sides and woody places. Rare. A relic of cultivation. P. August.

First recorded in this Flora.

2. Ock. On the Boar's Hill range. In Bagley Wood, on the site of a cottage garden once belonging to the keeper.

4. Kennet. Near Round Oak, Mortimer, far from any dwelling, Tufnail. As an introduced plant, *Melissa* is recorded for Oxfordshire, Surrey, and Hants.

SALVIA, Linn. Gen. n. 36 (Tournefort, Inst. t. 83).

S. Verbenaca, Linn. Sp. Pl. 25 (1753). *Wild Clary.*

Horminum sylvestre, Gerard, 628.

Top. Bot. 302. Syme, E. B. vii. 42, t. 1056. Nyman, 570. Fl. Oxf. 226. Native. Viatical. Dry banks, sides of roads, railway-banks, &c. It is

fond of sunny places, and locally common, but absent from extensive areas of the county. P. May–October.

First record. *S. verbenaca*, Mr. Bicheno and Dr. Noehden, in *Mavor's Agr. Berks*, 1809.

1. *Isis*. Near Carswell, *Miss M. Niven*.
2. *Ock*. Marcham, *Walker*. Near Abingdon, *Thurland*, 1861. Denchworth, *Wait*. Plentiful by the railway between Oxford and Radley. Cothill. Radley. Frilford. By the railway between Culham and Didcot. Near King Standing Hill. Blewbury (see under *S. pratensis*). Dry Sandford.
3. *Pang*. Near Moultsford.
4. *Kennet*. Included in *Russell's Newbury Catalogue*, but without locality.
5. *Loddon*. Near Park Place. Roadside to Hurley, *Stanton*. Near Loddon Bridge.

S. Verbenaca is recorded for all the bordering counties.

***S. PRATENSIS**, Linn. Sp. Pl. 25, var. *a* (1753). *Meadow Clary*.

Top. Bot. 302. Syme, E. B. vii. 44, t. 1058. Nyman, 569. Fl. Oxf. 236.

Native? Pascual. Grassy fields. Very rare. P. July–September. First recorded by Miss M. Niven in 1896.

1. *Isis*. A solitary specimen in a field near Carswell, *Miss M. Niven*.

The claims of *S. pratensis* to be considered a native plant are not established in a satisfactory manner by the occurrence of a solitary specimen, but as it is native and widely scattered over a considerable portion of the *Isis* district in Oxfordshire, it is a plant we might reasonably expect to occur. We must bear in mind, however, that the Geology of the Berkshire district is very dissimilar from that of the *Isis* in Oxfordshire.

A notice of it will be found in *Russell's Catalogue* of 1839 on the authority of Mr. J. Lousley, who states that 'it is a very rare plant in this part of the country, found on a dry bank at the field-side at Blewbury near the "Wheel Inn," and on a dry bank by the side of the turnpike road, near the sign of the "Barley Mow," and betwixt Blewbury and Aston [Tirrel].' Without doubt these records belong to *S. Verbenaca*, a plant not mentioned by Mr. J. Lousley, but which occurs there.

S. pratensis is a native plant of Oxfordshire, and has been recorded for Bucks, Surrey, Hants, and Wilts; in the last of these it was an escape, and is only a doubtful native of Surrey. In Buckinghamshire it may have some claims to be considered native.

****S. VERTICILLATA**, Linn. Sp. Pl. 26 (1753).

Reichb. Ic. Fl. Germ. et Helv. xviii. t. 1255.

Casual. Waste places. B. or P. Rare. July–September.

2. *Ock*. Near Didcot Station with other casuals, 1891–6, fairly established. Grandpont. 5. *Loddon*. Near Maidenhead. On a rubbish-heap in Windsor. Near a brickyard in a field between Twyford and Ruscombe.

****S. MEMOROSA**, Linn. Sp. Pl. ed. 2, 35 (1762). *S. sylvestris*, Jacq. Fl. Austr. iii. t. 212, not of Linn., teste Kerner, Schedae, iii. 101.

Reichb. Ic. Fl. Germ. et Helv. xviii. t. 1253, f. ii. Nyman, 570.

Casual. Rare. Waste places, railway-sides, &c. P. July–August.

1. *Isis*. Near Wytham Mill. 2. *Ock*. By the railway at Didcot.

****S. SYLVESTRIS**, Linn. Sp. Pl. 24 (1753).

S. elata, Host, Fl. Austr. i. 24. *S. deserta*, Schangin in Ledeb. Ind. Sem. Hort. Dorpat. 6 (1824). Reichb. Ic. Fl. Germ. et Helv. l. c., f. i. Nyman, 570.

Casual. By the railway near Maidenhead.

Kerner (l. c. 103) considers it to be a hybrid of *S. nemorosa* and *S. pratensis*.

NEPETA, Linn. Gen. n. 629 (*Cataria*, Tournefort, Inst. t. 95).

N. Cataria, Linn. Sp. Pl. 570 (1753). *Cat-mint*.

Cataria herba, Dodoens, Pempt. 99. *Mentha Felina seu Cattaria*, Ger. Em. 682.

Top. Bot. 319. Syme, E. B. vii. 38, t. 1054. Nyman, 585. Fl. Oxf. 234. Native. Septal. Hedges, waysides, borders of fields, and sometimes in chalky cornfields, evincing a marked partiality for limestone or chalky soil. Local and rather uncommon. Absent from considerable areas on the clay and heaths. P. July-September.

First record. Sonning, Mr. S. Rudge, Herb. Brit. Mus. 1800. Published as *N. cataria* by Dr. Noehden in *Mavor's Agr. Berks*, 1809.

1. *Isis*. Cumnor. Buckland.

2. *Ock*. Marcham, Walker. Tubney, F. W. Bennett. In the Cow Lane, West Hagbourn Moor, *Lousley* in Russell's Cat. Cothill. Dry Sandford. Pusey. Frilford. Abingdon. Besilsleigh. Near Radley. Lowbury. Blewbury. Lockinge. Chilton. Upton. Shippon.

3. *Pang*. Streatley, Pamplin. Between Hampstead Norris and Blewbury, *Lousley*, l. c. Moulsoford. Pangbourn. Ashampstead. Sulham.

4. *Kennet*. North Heath, Russell's Cat. Near Chieveley, W. M. Rogers. Mortimer, Tufnail. Weston, Osmond. West Ilsley. Theale.

5. *Loddon*. Near Silent Pool, Penny. Sonning, Rudge. Shinfield, Tufnail. Frequent about Park Place, Stanton. Stubbing's Heath. Maidenhead. Wargrave. Hurley. Bisham.

The young plants have something of the appearance of *Ballota*, but the odour is quite different. Near Frilford a more deeply cut leaved form was noticed; this is the var. *SURINCISA*, Asch. Fl. Brandb. 519.

The Cat-mint found in the watery places by the Thames, according to Spencer's *Complete British Traveller*, 1771, probably refers to a Mint, perhaps *M. verticillata*.

Nepeta Cataria is recorded for all the bordering counties.

N. Glechoma, Benth. Lab. 485 (1832). *Ground Ivy*.

N. hederacea, Trev. Prosp. Fl. Eug. 26. *Glechoma Hederacea*, Linn. Sp. Pl. 578. *Hedera terrestris*, Gerard, 705.

Top. Bot. 319. Syme, E. B. vii. 40, t. 1050. Nyman, 587. Fl. Oxf. 235.

Native. Sylvestral. Woods, thickets, hedges, borders of fields, &c. Often in dry situations, and a conspicuous feature in our spring vegetation. Abundant and generally distributed. P. March-June.

First record. *Glechoma hederacea*, Mavor's *Agr. Berks*, 1809. *Puccinia Glechomatis*, Link, is not uncommon on it about Oxford, *Bart. Phaen. Bot.* n. 136, 1835.

Var. *PARVIFLORA*, Benth. l.c., in which the flowers are usually pistillate, has been noticed. A hairy form is not unfrequent, *f. hirsuta* (var. *hirsuta*, Reichb., not *Glechoma hirsuta*, Waldst. & Kit.).

I have seen it near Hampstead Norris, Basildon, Bucklebury, &c. *Nepeta Glechoma* is found plentifully in all the bordering counties.

SCUTELLARIA, Linn. Gen. n. 653 (*Cassida*, Tournefort, Inst. t. 84).

S. galericulata, Linn. Sp. Pl. 599 (1753). *Skull-cap, Hedge Hyssop.*

Lysimachia galericulata, Ger. Em. 477. *Scutellaria*, Rivinus.

Top. Bot. 321. Syme, E. B. vii. 47, t. 1060. Nyman, 573. Fl. Oxf. 227.

Native. Paludal. Sides of rivers, canals, brooks, and ponds. Common and generally distributed except on the high chalk-downs. P. June-September.

First record. *Hedge Hyssop* in great plenty on the banks of the Ocke, *Spencer's Complete British Traveller*, 1771. Sonning, Mr. S. Rudge, 1800, in *Herb. Brit. Mus.* *S. galericulata*, Mavor's *Agr. Berks*, 1809.

The plant is too frequent to need a list of localities. It is a pretty adornment of our river-banks as seen from a boat. A white-flowered form, *f. alba*, has been seen at Abingdon by Mr. Whitwell, and I have noticed it near Tadpole Bridge, near Godstow, near Sutton, Hurley, and at Frogmore.

When growing in shade among other herbage the Skull-cap becomes a straggling plant of considerable size, as near Wokingham, near Abingdon, and at Bulmarsh.

The nutlets are carried down by the stream, and specimens are often seen in the stonework by the river-side, as near Iffley, &c.

Var. *LEIOSEPALA*, mihi, is a large form in which the calyx is nearly glabrous. Usually the calyx is thickly clothed with hairs. I saw it near Wokingham mill-pond.

S. GALERICULATA × **MINOR** = *S. Nicholsoni*, Taubert in *Verhandl. Bot. Ver. Prov. Brand. xxvii.* (1886-7) 25.

This interesting hybrid was discovered by Mr. G. Nicholson in 1883 and recorded as follows: 'Virginia Water. It grows in considerable quantity [in the above station], occurring in both Berkshire and Surrey. Dr. Focke, who has made a special study of plant hybrids, says: "Intermediate between *S. galericulata* and *S. minor*; probably

a hybrid." The only hybrid, *Scutellaria*, mentioned in Dr. Focke's great work, *Die Pflanzenmischlinge*, is *S. pubescens*, Martini-Donos; the description of which, given by its author in the *Florule du Tarn*, will not fit in with my plant. I recently had the opportunity of examining in the Paris Herbarium a type specimen of *S. minori-galericulata*, Michalet, the description of which seems to have escaped Dr. Focke. This plant comes nearer to *S. galericulata* than any of those distributed to the Club. *Rep. of Bot. Exch. Club* (1883), 93.

The plant is abundant over a very considerable area about Virginia Water, and I have seen it near Wokingham.

S. galericulata is found in all the bordering counties.

S. minor, Huds. Fl. Angl. 232 (1762). *Lesser Hooded Skull-cap.*

Lysimachia galericulata minor, Ray, Syn. ii. 132.

Top. Bot. 321. Syme, E. B. vii. 48, t. 1061. Nyman, 573. Fl. Oxf. 227. Native. Ericetal. Damp heathy places, margins of ponds. Locally common. Absent from the Isis and Ock districts. P. June-September.

First record. *Lysimachia galericulata minor*. In Coleman's and other moors about Reading, MS. note in a copy of Ray's *Cat.* about 1680. See *Phyt.* (1852) 746. Bulmarsh Heath, Mr. S. Rudge, *Herb. Brit. Mus.* 1800. *Scutellaria minor*, Mr. Bicheno, in *Mavor's Agr. Berks*, 1809.

3. Pang. Cold Ash Common, *Russell's Cat.* Fence Wood. Oare Wood.

4. Kennet. Bogs on Snelsmore Common, *Mrs. Russell's Cat.* Weston, Osmond. Newtown Common, *Stubbs, in Britt. Contr.* Mortimer, *Tufnail*. Boggy parts of Inkpen Common, *Pinnock's Hist. of Berks*, 1819. Aldermaston, also near the Decoy Pond and in the Soak. Mortimer West Common. Upton. Greenham Common. Sandleford. Burghfield, &c.

5. Loddon. Coleman's Moor, MS. in Ray. Bulmarsh, *Rudge*. Near Wellington College, *Penny*. Warren Row, rare, *Stanton*. Windsor Great Park, *Moore, in Britt. Contr.* Virginia Water, *Trimen*. Broadmoor. Sandhurst. Jouldern's Ford. Long Moor. Bracknell. Finchampstead. Risely. Early. Ambarrow. Bagshot. Sunninghill. Easthampstead. Binfield. White Knights. Bearwood, &c.

S. minor is recorded for all the bordering counties.

PRUNELLA, Linn. Gen. n. 654, as *Brunella*, Tournefort, Inst. t. 84.

P. vulgaris, Linn. Sp. Pl. 600, var. *a* (1753), and of Park. 1680. *Common Self-heal.*

Brunella vulgaris, Moench, Meth. 414.

Top. Bot. 321. Syme, E. B. vii. 46, t. 1059. Nyman, 573. Fl. Oxf. 227.

Native. Pascual. Pastures, heaths, woods, &c. Abundant and widely distributed, occurring in turf in the Abbey grounds at Reading. P. June–August.

First record. *P. vulgaris*, *Mavor's Agr. Berks*, 1809. Mr. J. Haines discovered a new and beautiful species of *Asteroma* on the stems and upper surface of the leaves of *Prunella* in Bagley Wood, Feb. 10, 1824, *Bact. Stirp. Crypt. Oxon.* n. 79, and *Phaen. Bot.* 67, 1834.

The flowers vary from dark and light blue to purplish and white. Claret-coloured flowered plants have been noticed in Windsor Park, Mortimer, and near Uffington; white-flowered forms have been seen by the Rev. C. W. Penny at Ravenswood Park, by the Rev. V. Craucley at Wellington College, and by Sister Jane Frances at Bagley.

P. vulgaris occurs in all the bordering counties in considerable abundance.

[*MELITTIS MELISSOPHYLLUM*, Linn. Sp. Pl. 597 (1753). Syme, E. B. vii. 49, t. 1062-3. Occurs in South Hampshire and Wiltshire.]

MARRUBIUM, Linn. Gen. n. 640, 1753 (Tournefort, Inst. t. 91).

**M. vulgare*, Linn. Sp. Pl. 583 (1753), and of Clusius. *Horehound*.

Top. Bot. 320. Syme, E. B. vii. 51, t. 1064. Nyman, 582. Fl. Oxf. 234. Denizen or casual. Viatical. Roadsides and waste places. Rare and sporadic. P. May–September.

First record. *M. vulgare*, Dr. Noehden, in *Mavor's Agr. Berks*, 1809.

1. **Isis.** About Appleton, *Miss Hoskins*, in *Bact. Phaen. Bot.* iii. 171.
2. **Ock.** Between Hinksey Toll-gate and the road to Kennington, *Baxter*, l. c. [Gone from that locality.] Cow Lane, near Hagbourn, *Lousley in Russell's Cat.* Frilford, doubtless of garden origin. Near Folly Bridge on waste ground. Grandpont, see *Rep. of Exch. Club*, 1892. Near Cothill.
3. **Pang.** Streatley, *Pamplin*. East Ils'ey, *Hewell's Hist.* Near East Ilsley, as an escape from cultivation.
4. **Kennet.** Weston, *Osmond*.
5. **Loddon.** Near Sandhurst, *Miss De'amotte*, in *Bact. Phaen. Bot.* n. 171. Wokingham, *Penny*. Between Crazy Hill and Wargrave. Between Hurley and Pinkney's Green, *Mr. Stanton*. Near Jouldern's Ford. Near Maidenhead, by the railway.

Marrubium is recorded from all the bordering counties, but is probably not native in any of them.

STACHYS, Linn. Gen. n. 638 (Tournefort, Inst. t. 86).

S. Betonica, Benth. Lab. 532 (1832), not of Crantz or Scopoli. *Wood Betony*.

S. officinalis, Franch, Fl. Loir.-et-Cher, 483. *Betonica officinalis*, Linn. Sp. Pl. 573 (1753). *B. purpurea*, C. B. Pin. 235.

Top. Bot. 317. Syme, E. B. vii. 54, t. 1067. Nyman, 577. Fl. Oxf. 231. Native. Sylvestral. Woods, roadsides, hedge-banks, coppices, heaths, &c. This pretty species is scattered through the county rather frequently, occurring in most parishes where there are woods. P. June–November.

First recorded in *Spencer's Complete British Traveller*, 1771, and as *Betonica officinalis* in *Mavor's Agr. Berks*, 1809. With *Puccinia betonicae*, DC., on it in Bagley Wood, *Baxt. Phaen. Bot.* 214, 1837.

A white-flowered form was seen in Windsor Forest in 1894. In dry places the plant necessarily becomes smaller, and the stems are then sometimes decumbent.

Stachys Betonica is found in all the bordering counties.

[*S. GERMANICA*, Linn. Sp. Pl. 581 (1753), and of Gesner. *Downy Woundwort*. *S. Fuchsii*, Ger. Em. 695. *S. major germanica*, C. B. Pin. 236. Syme, E. B. vii. 56, t. 1068. Fl. Oxf. 231.

Error. Occurs in plenty in . . . Berks, *Bromfield in Phyt.* iii. 685, *O. S. Ducklington*, Berks, *Bicheno in Hook. Brit. Fl.* ed. 3, 282, 1835.

Ducklington is in Oxfordshire; hitherto *S. germanica* has not been found by me in Berkshire.

Oxfordshire is the only bordering county for which it is recorded, and there it has not been found on the Coralline Oolite.]

S. palustris, Linn. Sp. Pl. 580 (1753), and of Gesner. *Marsh Woundwort*, *Clown's All-heal*.

S. palustris foetida, C. B. Pin. 236. *Panax Coloni*, Ger. Em. 1005.

Top. Bot. 318. Syme, E. B. vii. 57, t. 1069. Nyman, 578. Fl. Oxf. 232. Native. Paludal, agrestal. Ditches, stream-sides, thickets, badly drained fields, &c. P. June–September.

First record. Sonning, *Mr. S. Rudge*, 1800, in *Herb. Brit. Mus.* Published by Dr. Noehden in *Mavor's Agr. Berks*, 1809.

A dwarf form is mentioned by *Mr. J. C. Melvill* from Hurst, and *Mr. Tufnail* says it occurs in arable fields at Sonning.

S. palustris, which is too frequent in all the districts of the county to need an enumeration of localities, occurs in all the bordering counties.

S. sylvatica, Linn. Sp. Pl. 585 (1753). *Hedge Woundwort*.

Galeopsis vera, Ger. Em. 704.

Top. Bot. 319. Syme, E. B. vii. 59, t. 1071. Nyman, 578. Fl. Oxf. 232. Native. Sylvestral. Woods, ditches, hedges, brook-sides, and shady places. Frequent. P. May–July.

First record. Sonning, *Mr. S. Rudge*, *Herb. Brit. Mus.* 1800. Published as *S. sylvatica*, Dr. Noehden, in *Mavor's Agr. Berks*, 1809.

S. sylvatica is too frequent to need localities being given, and is most abundant in rich soil in low-lying situations, becoming much less frequent on the Upper Chalk.

S. sylvatica occurs commonly in all the bordering counties.

S. ambigua, Sm. E. B. t. 2089 (1809).

S. sylvatici-palustris, Wirtg. *S. palustris* x *sylvatica*, Schiede de Pl. Hyb. 43.

Comp. Cyb. Br. 275. Syme, E. B. vii. 58, t. 1070. Nyman, 578. Fl. Oxf. 232.

Native. Septal. Hedge-sides, &c., a hybrid of *sylvatica* and *palustris*, which appears to be confined to clayey ground. Rare. P. July-September.

First recorded from Holmwood by Lord de Tabley (Hon. J. L. Warren) in 1871.

2. Ock. Near South Hinksey, the author in Rep. Exch. Club, 1894.

4. Kennet. Mortimer, Tufnail.

5. Loddon. Holmwood, Lord de Tabley. Near Twyford.

My records belong to the true *ambigua* as figured in Syme, E. B. 1070. Other hybrids which are nearer to *palustris* are more frequent.

S. arvensis, Linn. Sp. Pl. ed. 2, 814 (1762). Upright Ground Ivy.

Glechoma arvensis, Linn. Sp. Pl. 578 (1753).

Top. Bot. 319. Syme, E. B. vii. 60, t. 1072. Nyman, 578. Fl. Oxf. 223.

Native or colonist. Cultivated fields, more frequent on sandy soil.

Rather local. A. March-November.

First record. *Sideritis Alsine Trissaginis folio*, C. B. Pin. In arvis et inter segetes variis circa Oxoniam (Bobart), Morison, Hist. Ox. iii. 389, 1699.

1. Isis. Wytham.

2. Ock. Near Cumnor Hurst, Sister Jane Frances. Wootton, unusually large, Whitwell. Boar's Hill. Frilford.

3. Pang. Streatley, Pamplin. Borders of fields at Ilsley, Pinnock's Hist. Berks, 1819. Tidmarsh. Tilehurst, Tufnail.

4. Kennet. Burghfield. Mortimer. Silchester. Newbury. Theale.

5. Loddon. Finchampstead, Rev. C. W. Penny. Frequent about Park Place, Mr. Stanton. Hurst, J. C. Melvill. Maiden Early, Tufnail. Barkham. Wargrave. Maidenhead.

S. arvensis is recorded for all the bordering counties.

***S. ANNUA**, Linn. Sp. Pl. ed. 2, 813 (1762).

Betonica annua, var. *a. glabra*, Linn. Sp. Pl. 573 (1753).

Comp. Cyb. Br. 547. Syme, E. B. vii. 61, t. 1073. Nyman, 579. Fl. Oxf. 233.

Alien. Casual. Waste places. Rare. A. July-August.

First found in Berkshire by Mr. F. T. Richards, by the river-side near Folly Bridge, Oxford, in 1887.

I have seen it at Grandpont and at Didcot with other aliens. In the latter place I have also gathered the var. *longibracteata*, Brébisson, Fl. Normandie, 245, which has long, nearly entire bracts. The lower leaves are also not so strongly crenate as in the type.

GALEOPSIS, Linn. Gen. n. 637.

***G. LADANUM**, Linn. Sp. Pl. 579 (1753) and Herb., teste Syme. *Red Hemp Nettle*.
G. intermedia, Vill. Prosp. 21.

Comp. Cyb. Br. 547. Syme, E. B. vii. 63, t. 1075. Nyman, 576.

Casual or colonist. Agrestal. Garden ground. Very rare. A. June-Aug.

First found by the author at Didcot, in garden ground close by the railway, in 1894. Still there in 1896.

It does not appear to have been recorded for any of the bordering counties.

G. angustifolia, Ehrh. ex Hoffm. Deutsch. Fl. ed. 2, i. 118 (1800-4). *Red Hemp Nettle*.

G. Ladanium, Nyman, Consp. 576.

Top. Bot. 316. Syme, E. B. vii. 62, t. 1074. Nyman, 576. Fl. Oxf. 230.

Native. Agrestal. Cornfields and cultivated ground, more frequent on calcareous soil. A. June-October.

First record. Sonning, Mr. S. Rudge, Herb. Brit. Mus. 1800. Published as *G. Ladanium* in Russell's Cat. 1839.

The aggregate plant occurs in all the districts and is frequent in calcareous soils. It is rather variable.

Var. **CANESCENS** (Schult. Obs. Bot. 108, as a species), is the common plant on chalky soils, as at Compton, &c. The calyces are thickly clothed with pubescence, and the narrow leaves are of a greyish green.

Var. **LATIFOLIA** (Hoffm. Deutsch. Fl. ii. 8, as a species), has much broader leaves and a more naked calyx with larger flowers. It has been seen at Cothill, Shippon, Tubney, Marcham, and other places in the Vale.

G. angustifolia occurs in all the bordering counties.

G. speciosa, Miller, Gard. Dict. ed. 8, n. 3 (1768).

G. versicolor, Curtis, Fl. Lond. vi. t. 38 (1794), Index Kewensis.

G. Tetrahit, var. *b*, Linn. Sp. Pl. 590 (1753). *Cannabis spuria flore pallido labro purpureo elegante*, Merrett, 19.

Top. Bot. 316. Syme, E. B. vii. 65, t. 1077. Nyman, 576. Baxt. t. 75. Fl. Oxf. 230.

Colonist. Agrestal. Cultivated fields. Very local and rare. A. July-August.

First recorded by the Rev. F. W. Bennett in Fl. Oxf. 230, 1886.

2. Ock. Near Wittenham, Rev. F. W. Bennett.

5. Loddon. Near Park Place, appearing among the Clover crops and Vetches, but not common, Stanton. Wellington College Brick-yards, Well. Coll. List, 1894, Fitzgerald. Oat-field, Sonning, Tufnail.

G. speciosa is reported from Oxfordshire, Bucks, and Surrey.

G. Tetrahit, Linn. Sp. Pl. 579, var. *a* (1753). *Hemp Nettle*.

Cannabis Spuria, Gerard, 573. *Tetrahit*, Dill. Gen. 3.

Top. Bot. 316. Syme, E. B. vii. 66, t. 1078. Nyman, 576. Fl. Oxf. 230.

Native. Agrestal. Septal. Cultivated and waste ground, hedges, borders of and open places in woods, &c. Common and generally distributed. Often abundant in cleared woodland. A. June-Oct.

First record. Sonning, Mr. S. Rudge, 1800, in *Herb. Brit. Mus.* Published as *G. tetrahit*, Dr. Noehden in *Mavor's Agr. Berks*, 1809.

G. Tetrahit is a variable species. It exists under two important modifications which are sub-specifically distinct. The first of these, which I call the type, is the sylvan plant, which is sometimes as much as four feet high. This has a corolla twice the length of the calyx tube. The flowers, usually dull rose, are sometimes white, *f. alba*, occasionally pale yellow. Under this I place the following variety.

Var. *NIGRICANS*, Brébisson, Fl. de la Normandie, 246, with almost black calyces; it is the *Lamium cannabinum floribus albis, verticillis purpurascens* of Doody, in Ray, Syn. ii. App. 342 (1696). Doody says he noticed it for many years, and 'toto habitu a vulgari differre videtur.' In its extreme form it is a striking plant from the contrast of the pale flowers with the purplish-black verticillasters. It has been noticed at Wytham, Catmore, Mortimer, Finchampstead, Risely, Blackwater, Windsor Park, &c.

The second modification, which at least deserves sub-specific rank, is the var. *BIFIDA* (Boenn. Prod. Fl. Monast. 178, as a species), Syme, l. c., t. 1079. This is a much smaller plant, about 6-9 inches, with a much smaller and shorter corolla occurring among the corn rather frequently. It was first noticed in Berkshire, near Sunningdale, by Mr. H. C. Watson. I have seen it in all the districts, as at Cumnor, Frilford, Boar's Hill, Bourton, Wallingford, Yattendon, Lambourn, Brimpton, Reading, Twyford, Winkfield, Shurlock Row, &c.

Galeopsis Tetrahit is found plentifully in all the bordering counties.

LEONURUS, Linn. Gen. n. 641 (*Cardiaca*, Tournefort, Inst. t. 87).

***L. CARDIACA**, Linn. Sp. Pl. 584 (1753).

Motherwort.

Comp. Cyb. Br. 546. Syme, E. B. vii. 68, t. 1080. Nyman, 580. Fl. Oxf. 233. Alien or denizen. Viatical. Waste places, roadsides. Very rare. P. August-September.

First record. *Cardiaca*. It ioieth [joyeth] among rubbish in stonie and other barren and rough places, especially about Oxford, Gerard, 569, 1597 [now extinct].

2. Ock. By the railway near Didcot, 1894.

4. Kennet. One plant near West Woodhay Common, 1870, Reeks in Brit. Contr.

5. Loddon.

In a hedge near Finchampstead, 1891-6.

Leonurus has been recorded for Oxfordshire, Surrey, and Hants.

LAMIUM, Linn. Gen. n. 636 (Tournefort, Inst. t. 85).

L. amplexicaule, Linn. Sp. Pl. 579 (1753).

Henbit.

Alsine Hederula altera, Gerard, 493.

Top. Bot. 314. Syme, E. B. vii. 69, t. 1081. Nyman, 575. Fl. Oxf. 229.

Native. Agrestal. Cultivated ground, chiefly on sandy or gravelly soil, wall-tops, &c. Locally common, and too frequent to need detailed localities. A. February–August.

First recorded by Mr. J. Lousley, and in *Russell's Catalogue*, 1839.

Plants with cleistogamous flowers are not unfrequent, as on Boar's Hill, *F. T. Richards*: at Frilford, Frilsham, Twyford, Mortimer, &c.

L. amplexicaule is found in all the bordering counties.

L. hybridum, Vill. Hist. Pl. Dauph. i. 251 (1786). *Red cut-leaved Archangel*.

L. dissectum, With. Bot. Arr. ed. 3, iii. 527 (1796). *L. incisum*, Willd. Sp. Pl. iii. 89 (1800).

Top. Bot. 315. Syme, E. B. vii. 71, t. 1083. Nyman, 575. Fl. Oxf. 228. Colonist or denizen. Cultivated ground. Local and rather rare. A. April–August.

First certain record. Medmenham, *Britten's Contr.* 1871. Mr. Pamplin's record of *L. purpureum*, var. *incisum*, in *Phyt.* v. (1854) 156, was probably *L. purpureum*, var. *decipiens*, which still occurs about Pangbourn.

2. **Ock.** In fields near Wantage and between Wantage and Letcombe Bassett. In fields between Wittenham and Didcot. In fields near Wootton.

4. **Kennet.** Battle Farm, Reading, *Tufnail*.

5. **Loddon.** Near Medmenham Ferry, *Britten*. Early Rise, *Tufnail*. Wargrave, *Melvill*. Near Knowl Hill. Above Quarry Woods. Maidenhead.

L. hybridum, which is not a hybrid, notwithstanding its name, has been recorded for all the bordering counties except Buckinghamshire [where I have seen it near Slough] and E. Gloucestershire.

The Maidenhead plant has much of the aspect of *L. purpureum*, and the Rev. E. F. Linton thought it might be *L. hybridum* × *purpureum*, but it has perfect seeds.

L. purpureum, Linn. Sp. Pl. 579 (1753). *Red Dead Nettle*.

L. rubrum, Gerard, 568, and of Huds. Fl. Angl. 225. *L. nudum*, Crantz, Stirp. Austr. ed. 2, v. 259.

Top. Bot. 314. Syme, E. B. vii. 72, t. 1084. Nyman, 575. Fl. Oxf. 228.

Native. Agrestal. Cultivated ground, fallow fields, hedge-sides, and as a garden weed. Common and generally distributed. A. January–December.

First record. Sonning, *Mr. S. Rudge*, 1800, in *Herb. Brit. Mus.* Published in *Mavor's Agr. Berks*, 1809.

Var. **DECIPIENS** (Sonder ex Martr. Fl. Tarn. 560, as a species), ? *L. purpureum*, var. *incisum*, Pamplin in *Phyt.* v. (1854) 156. See Crepin, Pl. Rares Crit. Belg. fasc. iv. 38.

2. **Ock.** Near Cothill. Wantage. 3. **Pang.** Between Pang-bourn and Tidmarsh. Streatley, *Pamplin*.

The white-flowered form (*f. alba*) I have seen near Abingdon, near Reading, at Old Windsor, and Shottesbrooke.

L. purpureum also occurs under two modifications; one as the agrestal plant with dark green foliage, reddish-purple flowers, and the other as the plant of dryish soils and sunny hedge-banks, which has yellower foliage much tinged with red, with smaller and paler-coloured flowers, and leaves of a softer texture.

In Suffolk I thought the tint of the flowers was brighter than that of our Berkshire plant.

L. purpureum is found in all the bordering counties.

****L. MACULATUM**, Linn. Sp. Pl. ed. 2, 809 (1762).

Comp. Cyb. Br. 546. Syme, E. B. vii. 74, t. 1085. Nyman, 574. Fl. Oxf. 228. Alien. Hedge-banks. An escape from gardens. P. June-August.

3. **Pang.** In a grassy lane near a cottage, between Ashampstead and Streatley.

It is quite naturalized in some islands in the Cherwell at Oxford, as is the variety with spotless leaves—var. *laevigatum* (Linn. l. c. 808, as a species).

L. album, Linn. Sp. Pl. 579, var. *a* (1753), and of Gerard, 567. *White Dead Nettle*.

Top. Bot. 314. Syme, E. B. vii. 74, t. 1086. Nyman, 574. Fl. Oxf. 227. Native. Viatical. Waysides, waste places, borders of fields, hedge-banks. Locally plentiful and especially abundant in some of the upland parishes in the Pang and Kennet districts, but rare or absent from considerable areas of uncultivated ground. P. February–September.

First record. Sonning, Mr. S. Rudge, in *Herb. Brit. Mus.* 1800. *L. album*, *Mavor's Agr. Berks*, 1809.

Although, as its name implies, the flowers are usually white, specimens may be found more or less suffused with a pinkish tint. Such have been noticed by Mr. F. T. Richards at Standford Dingley, and I have seen the same tinted forms at West Ilsley, at Twyford, Clewer, &c. A narrow-leaved form or variety has been noticed near Maidenhead [and between Slough and Stoke Poges in Bucks].

The flowers are much visited by humble-bees.

L. album is found in all the bordering counties.

L. Galeobdolon, Crantz, Stirp. Austr. ed. 2, iv. 262 (1763). *Yellow Archangel*, *Yellow Dead Nettle*.

Galeopsis Galeobdolon, Linn. Sp. Pl. 580 (1753). *Galeobdolon luteum*, Huds. Fl. Angl. ed. 2, 258. *G. montanum*, Reichb. Fl. Germ. Exc. 860. *Lamium luteum*, Gerard, 567.

Top. Bot. 313. Syme, E. B. vii. 76, t. 1087. Nyman, 575. Fl. Oxf. 229.

Native. Sylvestral. Woods, hedges, and borders of woods. Locally common in all the districts. P. April-June.

First record. Yellow Archangel, Bagley wood by Oxford, *W. Coles, Adam in Eden*, 1657.

1. *Isis*. There is another *LAMRUM* which beares a yellow floure, it growes in Merley wood, *MS. in Lyte's Herball*, also in Sir Joseph Banks' MSS. Wytham, *Boswell*. Cumnor. Near Faringdon. On the Eynsham Road, in the hedges.
2. *Ock*. Bagley, *W. Coles, l. c.* White Horse Hill, *Bolton King*. Denchworth, *Wait*. Boar's Hill. Uffington. Tubney.
3. *Pang*. Streatley, *Pamplin*. Bradfield, *Jenkinson*. Moultsford. Unwell Wood. College Wood. Bennett's Wood. Ashampstead. Yattendon. Aldworth. Bulham. Basildon. Tilehurst, &c.
4. *Kennet*. Near Greenham, *Weaver*. Padworth. Aldermaston. Hampstead Marshall. Inkpen. Riever Wood. Bucklebury. Theale. Mortimer. Snelsmore.
5. *Loddon*. Park Place. Bowsey Hill. Remenham, *Stanton*. Swallowfield, *Tufnail*. Wellington College List. Ashley Hill. Cookham. Wargrave. Bisham. Stubbing's Heath, &c.

When the upper bracts are so much developed as to become leaf-like, it is *Galeobdolon luteum*, Reichb. l. c.

In some of our woods on the Chalk the barren creeping stems form a considerable proportion of the undergrowth. The leaves are often variegated in a somewhat similar manner to those of *L. maculatum*.

L. Galeobdolon occurs in all the bordering counties.

BALLOTA, Linn. Gen. n. 639 (*Ballote*, Tournefort, Inst. t. 85).

B. nigra, Linn. Sp. Pl. 582 (1753). *Black Horehound, Stinking Horehound*.

B. foetida, Lam. Fl. Fr. ii. 381 (1778). *Marrubium nigra*, Gerard, 566. Top. Bot. 312. Syme, E. B. vii. 52, t. 1065. Nyman, 581. Fl. Oxf. 23. Native. Viatical. Hedges, waste places, very common by footpaths and by our dustiest roadsides, &c., throughout the county; especially abundant about some of the villages in the Pang, Kennet, and Loddon districts, and too frequent to need a list of localities. P. June-September.

First record. *B. nigra*, Dr. Noehden in *Mavor's Agr. Berks*, 1809.

It varies much as to its pubescence; sometimes it is nearly glabrous, at others densely hairy. The *f. alba* occurs occasionally, as near Reading, *Pamplin*: near East Ilsley, Abingdon, Waltham, &c.

The calyx teeth also vary in their length and narrowness. A form with these much narrower and more acuminate than the type occurred near Loddon Bridge, but I do not consider it to be *B. ruderalis*; see *Rep. Bot. Exch. Club*, 1890. Many of the forms, which have a lanceolate

calyx in the young state, on coming to maturity are inseparable from the type.

Var. *RUDERALIS* (Swartz in Palmstr. Sv. Bot. t. 389 (1809), as a species). Comp. Cyb. Br. 547. Top. Bot. 313. Syme, E. B. vii. 52, t. 1166. Fl. Oxf. 234.

3. Pang. One specimen was said to have been found by the Rev.

W. W. Newbould and Dr. Boswell Syme, in 1867, by the bridge at Streatley, probably on the Oxfordshire side of the river.

The specimen in Herb. Brit. Mus. is not extreme *ruderalis*.

Near East Ilsley *B. nigra* occurred with white flowers and softly clothed with short pubescence. Specimens were distributed through the Bot. Exch. Club for 1895.

A small-leaved form, which has been seen at Appleton, Compton, Wargrave, Loddon Bridge, and Sonning, is the var. *BOREALIS* (Schweig), Reichb. Ic. Fl. Germ. et Helv. xviii. t. 1218, f. ii. It is placed under *B. alba* in *Index Kewensis*.

Ballota nigra is found plentifully in all the bordering counties.

I have gathered true *B. ruderalis* in the dockyards at Southampton, but there it may have very probably been introduced with other casuals. The flowers appear to be a little more conspicuous and somewhat brighter in tint. This attracted my attention to it, as I had noticed the same character in plants of *B. ruderalis* which I gathered in the Prater at Vienna.

TEUCRIUM, Linn. Gen. n. 625 (Tournefort, Inst. t. 93).

T. Scordium, Linn. Sp. Pl. 565 (1753). *Water Germander*.

Top. Bot. 311. Syme, E. B. vii. 82, t. 1092. Nyman, 565. Fl. Oxf. 224-5. Native. Paludal. Stream-sides and wet meadows. Most rare, if not extinct. P. August-September.

First record. *Scordium*. I heare saye that it groweth also besyde Oxorde, Turner's *Names of Herbes*, 71, 1548.

2. Ock. *Water Germander* groweth neere to Oxenford by Ruley on both sides of the water, and in a medowe by Abington called Nietford, by the relation of a learned Gentleman of S. John's in the said towne of Oxenford, a diligent Φιλόσοφος, my very good friend, called Master Richard Slater, Gerard, *Herbal*, 535, 1597. This is the St. Neat's Meadow, where it was found by Dr. Lightfoot about 1780. Sowerby also records it for Berkshire, and there is a specimen of his in the British Museum.

The plant existed in Oxfordshire at least till the sixties, but the alteration at Godstow Lock destroyed it. I have hitherto been unsuccessful in trying to find it in either county. The meadow referred to by Gerard as Nietford at Abingdon is still marshy enough to yield many bog and marsh plants such as *Menyanthes*, *Ranunculus Lingua*, *Polygonum minus*, &c. It is of considerable extent, and I have a vivid recollection of wading over it on a cold September day in search of this species.

In the first edition of the *Manual of British Botany* Babington inquired if ours was the true *T. Scordium*. Our specimens are certainly true *Scordium*, not the var. *scordioides*.

T. Scordium has not been recorded for any other of the bordering counties except Oxfordshire.

[**T. BOTRYS**, Linn. Sp. Pl. 562 (1753). *Botrys Chamaedryoides*, C. B. Pin. 138. Syme, E. B. vii. 81, t. 1091. Is found in Surrey.]

[**T. CHAMAEDRYS**, Linn. Sp. Pl. 565 (1753). *Germander*.
Chamaedrys major repens, C. B. Pin. 248. Comp. Cyb. Br. 564. Syme, E. B. vii. 84, t. 1094. Nyman, 565. Fl. Oxf. 225. Occurs on a wall at Witney in Oxfordshire.]

T. Scorodonia, Linn. Sp. Pl. 564 (1753). *Wood Sage*.

Scorodonia sive Salvia agrestis, Gerard, 536.

Top. Bot. 311. Syme, E. B. vii. 85, t. 1093. Nyman, 565. Fl. Oxf. 224. Native. Sylvestral and ericetal. Dry open woods, commons, and heaths, preferring sunny exposures. Locally abundant, but rare or absent from the greater part of the Isis district. P. May-Sept. First record. *Wilde Sage*. It grows on the Chilsey Hills, MS. in Lyte's *Herball*, 1660. *T. scorodonia* in Mavor's *Agr. Berks*, 1809.

1. **Isis**. Appleton, *Baxt. Phaen. Bot.* 22. Faringdon.

2. **Ock**. Chilsey Hills (Childswell), MS. in Lyte. Bagley Wood. Cumnor Hurst, *Baxter*. Birch Copse, *Lawson* in *Herb. Oxf.* Tubney, *Walker*. Wootton Heath. Cothill.

Too common in the heathy parts of the Pang, Kennet, and Loddon districts to require the enumeration of localities.

Humble-bees are very fond of the flowers.

T. Scorodonia is recorded for all the bordering counties, but it is quite local in Oxfordshire.

AJUGA, Linn. Gen. n. 624 (*Bugula*, Tournefort, Inst. t. 98).

A. reptans, Linn. Sp. Pl. 561 (1753). *Bugle*.

Top. Bot. 312. Syme, E. B. vii. 77, t. 1088. Nyman, 567. Fl. Oxf. 225. Native. Sylvestral. Woods, thickets, wet pastures, damp heaths, &c.

Common and widely distributed. P. May-July.

First record. Sonning, Mr. S. Rudge, 1800, *Herb. Brit. Mus.* *Ajuga reptans*, without locality in *Russell's Cat.* 1839.

The Bugle is too frequent to need localities being given.

A white-flowered form has been noticed in Bagley Wood by *Sister Jane Frances*, at Mortimer by Mr. *Tufnail*, and I have seen it near Coleshill, Radley, Appleton, Wytham, Streatley, Kintbury, Hungerford, Aldermaston Soak, Finchampstead Leas, Windsor Park, &c. Pale-blue-flowered forms are also found, as at Wytham, Radley, Pusey, Steventon, Sulham, Wargrave, Cookham, &c. Plants with rose-coloured flowers have been seen in Windsor Forest, Mortimer, Padworth, &c.

Some of the woods on the Chalk show a beautiful display of its flowers in May.

A. reptans is found in all the bordering counties.

A. CHAMAEPITYS, Schreb. Unilab. 24 (1773).

Ground Pine.

Teucrium Chamaepitys, Linn. Sp. Pl. 565 (1753). *Chamaepitys mas*, Gerard, 421.

Top. Bot. 312. Syme, E. B. vii. 80, t. 1090. Nyman, 568.

First and only record. Ground Pine, in the Vale of the White Horse, *Spencer's Complete British Traveller*, 1771.

It is possible that the above vague record is correct, but I have been unable to verify it. It should be sought for in sandy cornfields.

The plant is recorded for Surrey and Hampshire.

PLANTAGINACEAE, Lindl. Nat. Syst. ed. 2, 267 (1836).

PLANTAGO, Linn. Gen. n. 133 (Tournefort, Inst. t. 48).

P. major, Linn. Sp. Pl. 112 (1753).

Way-bread, Greater Plantain.

P. latifolia, Gerard, 338.

Top. Bot. 341. Syme, E. B. vii. 167, t. 1162. Nyman, 620. Fl. Oxf. 247. Native. Pascual. Pastures, waysides, waste places, margins of ponds, &c. Common and generally distributed. P. May–Sept.

First record. Sonning. Mr. S. Rudge, in *Herb. Brit. Mus.* 1800. *P. major*, *Mavor's Agr. Berks*, 1809. With *Erysiphe lamprocarpa*, Link, on it about Oxford, *Bastl. Phaen. Bot.* n. 207, 1837.

Var. **INTERMEDIA** (Gilib. Pl. Europ. i. 125, as a species).

1. **Isis.** Wytham. Appleton.
2. **Ock.** Marcham. Abingdon Racecourse.
3. **Pang.** Near Pangbourn.
4. **Kennet.** Tilehurst, *Tufnail*. Greenham. Snelsmore. Burghfield. Inkpen. Mortimer.
5. **Loddon.** Sonning, *Tufnail*. Near Wellington College. Finchampstead. Wargrave. Warren Row. Stubbington's Heath. Windsor Park. Shottesbrooke, &c.

Plantago major is found in all the bordering counties.

P. Coronopus, Linn. Sp. Pl. 115 (1753).

Buck's Horn Plantain.

Top. Bot. 342. Syme, E. B. vii. 173, t. 1168. Nyman, 617. Fl. Oxf. 246.

Native. Ericetal. Dry sandy pastures, heaths, roadsides. Locally common, especially on the heaths in the Kennet and Loddon districts. A. May–September.

First record. *P. Coronopus*, Dr. Noehden, in *Mavor's Agr. Berks*, 1809.

2. **Ock.** Blewbury Downs by Chance Barn and on other light soils, *Lousley*. Boar's Hill. Wootton Heath. Frilford. Tubney. Besilsleigh.

3. **Pang.** Hermitage Common, *Lousley in Russell's Cat.* Oare Common. Cold Ash Common. Bucklebury. Curridge Common.

4. **Kennet** and 5. **Loddon.** Too frequent to need a list of localities.

P. Coronopus occurs in all the bordering counties, but it is very local in Oxfordshire.

****P. ARENARIA**, Waldst. & Kit. Pl. Rar. Hung. i. 51 (1802).

P. ramosa, Asch. Fl. Brand. 547. *Peyllium ramosum*, Gilib. Fl. Lituan. i. 17 (1781).

Comp. Cyb. Br. 552. Syme, E. B. vii. 175. Nyman, 617.

Alien. Casual. Waste places. Very rare. July–August.

On waste ground at Didcot Station.

Mr. Everett has found it near Windsor, on the Buckinghamshire side of the river.

P. media, Linn. Sp. Pl. 113 (1753). *Hoary Plantain*.

Top. Bot. 341. Syme, E. B. vii. 169, t. 1163. Nyman, 620. Fl. Oxf. 247.

Native. Pascual. Dry meadows, pastures, roadsides, and grassy chalk downs. Not uncommon in all the districts, reaching its maximum of frequency on the Chalk. P. May–October.

First record. Sonning, *Mr. S. Rudge, in Herb. Brit. Mus.* 1800. Published in *Mavor's Agr. Berks*, 1809.

A form with a decumbent spike has been seen near Wantage.

P. media occurs in all the bordering counties.

P. lanceolata, Linn. Sp. Pl. 113 (1753). *Rib-grass, Plantain*.

Top. Bot. 342. Syme, E. B. vii. 170, t. 1164. Nyman, 620. Fl. Oxf. 247.

Native. Ubiquitous. Roadsides, pastures, waste and cultivated soil. P. April–July.

First record. Sonning, *Mr. S. Rudge, in Herb. Brit. Mus.* 1800, *P. lanceolata*. Very common in the best pastures, especially such as have been meliorated by irrigation, *Mavor's Agr. Berks*, 1809.

Var. **TIMBALI** (Jord. Pugill. 138, as a species), Syme, l. c., t. 1165. Comp. Cyb. Br. 552.

A casual weed in clover crops, as at Mortimer, Maidenhead, Wellington, and by the railway near Reading.

Var. **MAJOR**, Syme, l. c. Near Wellington College on a rubbish-heap and on rich garden soil, &c., not unfrequently.

A three-headed monstrosity (*triceps*) was found by Mr. J. C. Melvill in moist meadows close to Sandford Mill, on the Loddon, in 1876.

P. lanceolata occurs abundantly in all the bordering counties.

LITTORELLA, Berg. in Vet. Akad. Handl. Stockh. xxix. (1768) 341.

L. juncea, Berg. l. c. *Shoreweed*.

L. uniflora, Asch. Fl. Brand. 544. *L. lacustris*, Linn. Mant. ii. 295 (1771). *Plantago uniflora*, Linn. Sp. Pl. 115 (1753).

Top. Bot. 342. Syme, E. B. vii. 174, t. 1169. Nyman, 620. Fl. Oxf. 247.

Native. Lacustral. Pools. Very local. Absent from the north of the county. Not unfrequent in the south. P. June–August.

First recorded in *Pinnock's County History and Catechism*, 1819.

3. **Pang**. Hermitage, *Pinnock*.

4. **Kennet**. Aldermaston. Burghfield. Mortimer. Aldermaston Decoy.

5. Loddon. Abundant near Reading, *B. J. Austin*, in *Science Gossip*, 1873. Virginia Water, *Trimen*, in *Britt. Contr.* 1871! King's Mere, near Wokingham, *Salmon*. Sandhurst. Near Wellington. Ascot. Long Moor.

Littorella is recorded for all the bordering counties except East Gloucestershire.

ILLECEBRACEAE, Lindl. Nat. Syst. ed. 2, 127 (1836).

PARONYCHIACEAE, Link, Handb. ii. 420 (1831).

ILLECEBRUM, Linn. Gen. n. 256 (Ruppius, Fl. Jen. 89).

I. verticillatum, Linn. Sp. Pl. 206 (1753). *Verticillate Knot-grass*.

Top. Bot. 173. Syme, E. B. vii. 180, t. 1173. Nyman, 255.

Native. Uliginal. Borders of pools and on damp sandy ground in heathy districts.

First found by *Mr. A. W. S. Fisher* in 1891, recorded in *Journ. Bot.* 307, 1891, by the author, and distributed by him through the *Bot. Exch. Club* in 1892. See *Report*, p. 383.

5. Loddon. Near Wellington College.

The locality, where it was first found, is by a pool; it grows on the damp sandy margin with *Hydrocotyle*, *Ranunculus Flammula*, *Millegrana*, *Drosera*, *Veronica scutellata*, *Juncus bulbosus*, &c. No other introduced vegetation is near, except that it is in a district in which Pines and Rhododendrons are planted. The late *Mr. J. Walter* of Bearwood (on whose estate it occurs) told me he was not aware of any introduced soil being used in the vicinity. Subsequently I found it in considerable abundance, and it appeared as if the *Illecebrum* had been covered with sand brought from the neighbourhood in order to raise the ground for the road, and had eventually found its way through, as it did not appear during the first two years, and then showed itself at the margin of the sand. I may say that early in the year previous to its discovery I had searched the borders of the pond for *Millegrana*, but did not go completely round it, and so missed the locality by a few yards.

The original record of this plant as 'common in waste places and by roadsides at Blewbury and throughout the Vale,' by *Mr. J. Lousley* in *Russell's Cat.* 1839, is certainly an error. Probably *Polygonum aviculare* was mistaken for it.

The plant is only recorded from Cornwall and Devon in Great Britain, so its occurrence in Berkshire is of singular interest.

[**KERNIARIA HIRSUTA**, Linn. Sp. Pl. 218 (1753). Syme, E. B. 183. Comp. Cyb. Br. 514. Occurs in cultivated ground in Hampshire.]

SCLERANTHUS, Linn. Gen. n. 497 (*Knawell*, Dill. Gen. 3).

S. annuus, Linn. Sp. Pl. 406 (1753). *Knawell*, German Knot-grass.

Top. Bot. 173. Syme, E. B. vii. 181, t. 1174. Nyman, 257. Fl. Oxf. 124.

Native. Glareal, agrestal. Sandy cornfields and heathy ground.

Locally abundant, and although absent from large areas of the Clays and Chalk, yet too widely distributed to need the mention of localities. A. or B. March–September.

First recorded in *Russell's Newbury Catalogue*, 1839.

Var. BIENNIS (Reuter, in *Compt. Rend. Soc. Hall.* (1853–4) 20, as a species), Syme, l.c., t. 1175, is found more usually in untilled ground where the plant is undisturbed. I have seen it on Boar's Hill, near Padworth, at Snelsmore, and at Sunninghill. I am inclined to think with the Rev. E. F. Linton that this species has become more frequent owing to the culture of soils, and that *S. annuus* may have been evolved from the original biennial plant.

[*S. PERENNIS*, Linn. Sp. Pl. 406 (1753). Syme, E. B. vii. 182, t. 1176.

? Error. Snelsmore, 1871, Mrs. Cecil in the Herbarium of the Northamptonshire Nat. Hist. Soc. The specimen is *S. annuus*, var. *biennis*.]

AMARANTACEAE, Juss. Ann. Mus. ii. 131 (1803).

***AMARANTHUS RETROFLEXUS*, Linn. Sp. Pl. 991 (1753). Syme, E. B. vii. 185.

Casual. Waste ground. By the railway at Didcot, 1895.

CHENOPODIACEAE, Dumort. Anal. Fam. 15 (1829).

CHENOPODIUM, Linn. Gen. n. 273 (Tournefort, Inst. t. 288).

***C. CAPITATUM*, Asch. Fl. Brand. 572 (1864). *Strawberry Blite*.

Blitum capitatum, Linn. Sp. Pl. 4. *C. Blitum*, F. Muell. Sel. Pl. Ind. Cult. 49.

Curtis, Bot. Mag. t. 276. Syme, E. B. viii. 38. Comp. Cyb. Br. 552.

Casual. Waste places. By the railway at Didcot, 1895.

C. polyspermum, Linn. Sp. Pl. 220 (1753). *All Seed*.

Polyspermon, Tabernaem. *Atriplex sylvestris*, sive *polyspermon*, Gerard.

Top. Bot. 343. Syme, E. B. viii. 10, t. 1185–6. Nyman, 624. Fl. Oxf. 250.

Native. Agrestal. Cultivated fields, waste ground, hedges, and borders of fields. Local, but sometimes occurring plentifully over a limited area. A. June–September.

First found by Mr. F. Walker about 1860, and recorded on the authority of Messrs. Boswell, Trimen, and Watson, in *Britt. Contr.* 1871.

1. *Isis*. Near Wytham. Longworth.

2. *Ock*. Near Oxford, *Boswell*. Marcham, *Walker*. Denchworth, *Wait*. Waste and garden ground near Abingdon and on Abingdon Racecourse. Grandpont, in great quantity. Ferry Hinksey.

3. *Pang*. In potato-field and waste ground around by cottage in Fence Wood, *W. M. Rogers*. Sulham, *Tufnail*.

4. *Kennet*. Brimpton. Burghfield. Southcote. Greenham. Mortimer.

5. *Loddon*. Wokingham, *Trimen and Watson*. Wellington College, *Penny*. Blackwater. Sandhurst. Finchampstead. Knowl Hill.

Whistley Green. Shinford Green. Windsor Park. Ascot.
Bray. Haws Hill.

Var. *SPICATUM*, Moq.-Tand. in DC. Prod. xiii. 2. 62 = *C. acutifolium*, Sm. E. B. t. 1481, is the more common form and the one to which the greater parts of the above record refer.

5. *Loddon*. Hurst Grove, *Melvil*.

Var. *cymosum*, Cheval. Fl. Gen. Par. 385, and Moq.-Tand. l. c. Whistley Green. Grandpont.

C. polyspermum is found in all the bordering counties.

**C. Vulvaria*, Linn. Sp. Pl. 220 (1753). *Stinking Orache*.

C. olidum, Curt. Fl. Lond. f. 5, t. 20, and E. B. t. 1034.

Top. Bot. 343. Syme, E. B. viii. 12, t. 1187. Nyman, 624. Fl. Oxf. 250. Native. Viatical. Rubbish-heaps, garden ground on rich soil. Rare and local. A. July-September.

First found in Berkshire by the author in 1890.

2. *Ock*. Garden ground in Abingdon. Abundant on rubbish on Abingdon Racecourse, and on rubbish between Abingdon and Oxford. On rubbish at Didcot.

As the above records show, the plant has more the appearance of an introduced species in the county.

The specific name *Vulvaria* was used by Dalechamps in reference to its disgusting odour, due, it is said, to the presence of *trimethylamine*. It is recorded for all the bordering counties except E. Gloucestershire.

C. album, Linn. Sp. Pl. 219 (1753). *Goosefoot, Fat-hen*.

Top. Bot. 346. Syme, E. B. viii. 13, t. 1188-90. Nyman, 624. Fl. Oxf. 250. Native. Agrestal, &c. Waysides, cornfields, garden ground, manure-heaps, &c. Abundant and generally distributed over the cultivated part of the county. A. June-October.

First record. Sunninghill, *Sir Jos. Banks*, 1773. Sonning, *Mr. S. Rudge*, in *Herb. Brit. Mus.* 1800. *C. viride*, Dr. Noehden, *Mavor's Agr. Berks*, 1809.

C. album is a variable plant. Three varieties are given in our British lists.

Var. *CANDICANS* (Lam. Fl. Fr. iii. 248 (1778), as a species) = var. *commune*, Moq.-Tand. l. c. 71, Syme, E. B. 1188. This plant, which may deserve sub-specific rank, is common in cornfields in all the districts, and is sometimes found growing in barren ground on their borders.

Var. *VRIDE* (Linn. Sp. Pl. 219 (1753), as a species), Moq.-Tand. l. c. Syme, E. B. viii. 14, t. 1189. Cultivated ground, waste places, &c. Generally distributed.

Var. *PAGANUM* (Reichb. Fl. Germ. Exc. 579, as a species) = var. *virrens*, Syme, E. B. viii. 14, t. 1190 = var. *viridescens*, St. Amans.

Cultivated fields, waste places, manure-heaps, &c. Common and widely distributed.

Boreau says the three varieties come true from seed. In many cases small distinctions and trifling characters are perpetuated, i. e. the white form of *Geranium Robertsonianum*.

The varieties mentioned above by no means exhaust the forms grouped under *C. album*. While var. *candicans* is fairly distinct, the gap between var. *paganum* and var. *viride* is bridged over by a series of intermediate forms. Var. *candicans* itself varies considerably in leaf-cutting; an entire-leaved form is found.

C. album is found in all the bordering counties.

**C. opulifolium*, Schrad. in DC. Fl. Fr. v. 372 (1815).

Comp. Cyb. Br. 553. Syme, E. B. viii. 18. Nyman, 624. Fl. Oxf. 249.

Colonist. Waste places. Local. A. August-September.

First found in Berkshire by the author in 1886. See *Rep. of Bot. Exch.*

Club (1892), 383.

2. Ock. Near Grandpont. At Didcot. by the railway. Waste ground near Abingdon.

3. Pang. Near Reading on the railway ballast.

C. opulifolium is recorded for Oxfordshire, and I have seen it in Surrey.

C. ficifolium, Sm. Fl. Brit. i. 276 (1800), E. B. t. 1724.

C. viride, Curt. Fl. Lond. ii. t. 16, not of Linn. *Blitum Ficus folio*, Pet. Herb. Brit. 8. 3.

Top Bot. 346. Syme, E. B. viii. 15, t. 1191. Nyman, 624. Fl. Oxf. 250.

Native. Agrestal. Waste and cultivated ground. Rare. A. July-September.

First found in Berkshire by the author in 1890. See *Rep. of Bot. Exch.*

Club (1892), 383.

2. Ock. On waste ground near Folly Bridge. Also at Grandpont. By the railway at Didcot.

3. Pang. Garden ground, Tilehurst, *Tufnail*.

5. Loddon. By the railway near Maidenhead.

C. ficifolium is recorded for Bucks and Surrey, and since my *Flora of Oxfordshire* was published I have seen it in two or three localities about Oxford. In 1892 it was a very common weed in the Botanic Garden at Oxford.

C. murale, Linn. Sp. Pl. 219 (1753). *Nettle-leaved Goosefoot, Sowbane.*

Top Bot. 346. Syme, E. B. viii. 16, t. 1192. Nyman, 623. Fl. Oxf. 249.

Native. Agrestal, &c. Waste and cultivated ground, rubbish-heaps, river-sides. Rare. Sporadic. A. July-September.

First found in Berkshire by the author in 1888.

2. Ock. By the river near Oxford, *F. T. Richards*, 1889. Grandpont, 1888, plentiful. A few plants were seen in Marcham village in 1896.

5. Loddon. Near Bray.

C. murale is recorded for all the bordering counties except Hampshire.

C. hybridum, Linn. Sp. Pl. 219 (1753). *Maple-leaved Blite*.

Top. Bot. 346. Syme, E. B. viii. 17, t. 1193. Nyman, 623. Fl. Oxf. 249.

Native. Agrestal. Waste and garden ground, rubbish-heaps. Rare.

A. August–October.

First recorded by the author in the *Flora of Oxfordshire*, 1886.

1. Isis. Near Botley.

2. Ock. Grandpont, plentiful in 1889. Abingdon.

3. Pang. East Ilsley.

5. Loddon. Near Bray.

C. hybridum is not recorded for E. Gloucestershire.

C. urbicum, Linn. Sp. Pl. 218 (1753). *Upright Blite*.

Top. Bot. 344. Syme, E. B. viii. 19, t. 1194. Nyman, 623. Fl. Oxf. 249.

Native. Viatical. Rubbish-heaps. Very rare. A. August–September.

First found in Berkshire by the author in 1886 and recorded in this Flora.

2. Ock. By the railway near the Oxford Gas-works, 1886.

4. Kennet. Ballast-heaps by the Kennet's mouth, 1895, *Tufnail*.

5. Loddon. Sunninghill. Hurst Green.

Our plant is the var. *GENUINUM* of Syme, l. c.

C. urbicum is recorded for all the bordering counties except Wilts, but it is often reported in error.

C. rubrum, Linn. Sp. Pl. 218 (1753). *Red Goosefoot*.

Top. Bot. 345. Syme, E. B. viii. 20, t. 1196. Nyman, 623. Fl. Oxf. 248.

Native. Agrestal, inundatal. Cultivated fields, manure-heaps, pond-sides, rich waste ground. A. Rather frequent. July–September.

First record. '*Atriplex vulgaris sinuata spicata* . . . on dunghills about Oxford . . . with *sinuata major*, amongst which we suppose it has previously lain hid,' Plot, *Nat. Hist. Ox.* 1677. *C. rubrum*, Dr. Noehden, in *Mavor's Agr. Berks*, 1809.

1. Isis. Buscot, Bellamy. Cumnor.

2. Ock. Marcham, Walker. Ferry Hinksey. South Hinksey. Kennington. Abingdon. Besilsleigh. Radley. Sandford. Abingdon Racecourse, abundant.

3. Pang. Ballast-heaps, Boat-yard, Pangbourn. Tilehurst, *Tufnail*.

4. Kennet. Blewbury, *Russell's Cat*. Southcote. Theale.

5. Loddon. Park Place. Wargrave, *Stanton*. Sonning, *Tufnail*. Bray. Winkfield. Hurst. Twyford. Rusecombe. Shottesbrooke.

f. pseudo-botryodes = var. *pseudo-botryoides*, Wats. Lond. Cat. ed. 7, 19 (1877), occurs with the type, and all gradations may sometimes be seen on the mud by a partially dried-up pond, from a tiny plant an inch or so high to the robust plant 2–3 feet in height. See *Rep. of Bot.*

Exch. Club (1868), 13. It was the *C. botryodes*, Bab. Man. Brit. Bot. ed. 6, 287, not of Smith. An analogous case is to be seen in *Bidens cernua*. Some doubt exists as to the identification of Plot's plant.

C. rubrum occurs in all the bordering counties.

[**C. GLAUCUM**, Linn. Sp. Pl. 220 (1753). Syme, E. B. viii. 23, t. 1198. Is recorded for Surrey and Hampshire.]

C. Bonus-Henricus, Linn. Sp. Pl. 218 (1753). *Good King Henry, All Good, Wild Spinach, Fat-hen.*

Top. Bot. 347. Syme, E. B. viii. 34, t. 1199. Nyman, 623. Fl. Oxf. 248. Native. Viatical. Rather frequent by waysides, especially near villages. P. May-September.

First record. *C. bonus-henricus*. Mercury Goosefoot, Dr. Noehden, *Mavor's Agr. Berks*, 1809.

1. **Isis**. Wytham.

2. **Ock**. Marcham, *Walker*. Childswell Farm, *Boswell*. South Hinksey. Wootton. Wantage.

3. **Pang**. Streatley, *Pamplin*. Exceptionally common in and near all the villages and hamlets about Beedon, *W. M. Rogers*. Bradfield. Tilehurst. East Ilsley.

4. **Kennet**. Exceptionally common about Beedon, *W. M. Rogers*. Newbury, *Russell's Cat*. Beenham.

5. **Loddon**. Wargrave, *Melvil*. Sonning, *Tufnail*. Between Shurlock Row and Waltham. Haws Hill.

C. Bonus-Henricus is found in all the bordering counties.

****C. BOTRYS**, Sp. Pl. 219 (1753). Syme, E. B. viii. 38. Comp. Cyb. Br. 554.

Alien. Waste ground. Very rare. Only record, 'Bray, Mr. A. Hutton,' *Report of Thirsk Bot. Exch. Club*, 1861.

****BETA TRIGYNA**, Waldst. & Kit. Pl. Bar. Hung. 34, t. 35. Nyman, 622.

Casual. Several plants of this showy species were seen in a clover-field and on the railway embankment near Hermitage, and others by the side of the railway near Newbury. Specimens were sent by the author to the *Bot. Exch. Club* (see *Report*, p. 342-3) in 1891.

ATRIPLEX, Linn. Gen. n. 1021 (Tournefort, Inst. t. 286).

A. patula, Linn. Sp. Pl. 1053 (1753). *Spreading Orache.*

Top. Bot. 349. Syme, E. B. viii. 29. Nyman, 627. Fl. Oxf. 251.

Native. Agrestal. Cultivated ground and waste places. Common and generally distributed. A. July-October.

First record. Sunninghill, *Sir Joseph Banks*, *Herb. Brit. Mus.* 1774.

A. patula and *A. angustifolia* are included in *Russell's Cat*. 1839.

Var. **ERECTA** (Huds. Fl. Angl. 376 (1762), as a species). *Spear-leaved Orache.*

Top. Bot. 349. Syme, E. B. viii. 29, t. 1203. Fl. Oxf. 251.

First recorded by Mr. H. C. Watson in *Britt. Contr.* 1871.

Found in all the districts in rich cultivated ground and garden soil, especially turnip and mangold fields, manure-heaps, &c.

Var. *ANGUSTIFOLIA* (Smith, Fl. Brit. iii. 1092. E. B. t. 1774, as a species). *A. patula*, Wahl. not of Linn.

Top. Bot. 249. Syme, E. B. viii. 29, t. 1202. Fl. Oxf. 251.

Native. Agrestal. Cultivated fields. Abundant and generally distributed in almost every cornfield, and with *Polygonum aviculare* especially noticeable in the stubble. A. June-October.

A. patula is found plentifully in all the bordering counties.

A. hastata, Linn. Sp. Pl. 1053 (1753), not of Linn. Herb.

A. patula, Sm. Fl. Brit. iii. 1091, and E. B. t. 936 (not of Linn. Herb.). *A. Smithii*, Syme, E. B. viii. 32.

Top. Bot. 349. Syme, E. B. viii. 32, t. 1205. Nyman, 627. Fl. Oxf. 251.

Native. Agrestal. Waste ground, rubbish-heaps, garden ground.

Not uncommon. A. July-September.

First recorded by Mr. H. C. Watson in *Britt. Contr.* 1871, but without locality.

1. **Isis.** Near Wytham. Buscot. Botley. Appleton.

2. **Ock.** Grandpont. Abingdon. South Hinksey. Ferry Hinksey. Wantage.

3. **Pang.** Between Tilehurst and Reading. Tidmarsh.

4. **Kennet.** Near Reading. Southcote.

5. **Loddon.** Sonning. Shinfield, *Tufnail*. Maidenhead. Bray. Windsor.

More frequent than the above records show.

In the saline meadow at Marcham a form of this (var. *salina*) occurred, in which the leaves were very succulent, more covered with mealy clothing, and more prostrate in habit.

A. hastata is recorded for all the bordering counties.

A. deltoidea, Bab. Prim. Fl. Sarn. 82 (1839).

A. silv. sinuata, Lobel. Ic. 254. Put to *A. hastata* in Index Kewensis.

Top. Bot. 349. Syme, E. B. viii. 31, t. 1204. Nyman, 627. Fl. Oxf. 251.

Native. Paludal, &c. Sides of rivers, ponds, and brooks, damp waste ground. Locally common. A. August-October.

First recorded from Maidenhead by Prof. C. C. Babington in *Trans. Bot. Soc. Edin.* 13, 1840. See also *Phyt.* 289, 1843.

This plant, which may usually be distinguished by its paler yellowish-green foliage, is found in all our districts.

1. **Isis.** The author in *Rep. of Exch. Club*, 1892. Wytham. Cumnor. Appleton.

2. **Ock.** South Hinksey. Marcham, the author in *Rep. of Exch. Club*, 1892. Sutton Courtney. Wittenham. Kennington. Radley. Sandford. Didcot. Cholsey.

3. Pang. Moulsoford. Streatley. Pangbourn. Purley. Near Reading.
4. Kennet. Mouth of the Kennet, *Tufnail*. Theale. Beenham. Inkpen. Mortimer. Midgham. Southcote.
5. Loddon. Maidenhead, *Babington*. Sonning Lock, *Tufnail*. Hurley. Bisham. Aston Ferry. Wargrave. Coleman's Moor. Hurst. Ruscombe. Swinley. Bray. Bracknell. Old Windsor.

A prostrate form occurred by the Thames near Sandford and at Marcham in the saline meadow; this latter form, which is intermediate between *A. deltoidea* and the var. *prostrata*, Bab., was distributed through the *Bot. Exch. Club* in 1891 by the author, see *Report*, p. 343.

A. deltoidea occurs in all the bordering counties.

****A. HORTENSIS**, Linn. Sp. Pl. 1053 (1753), var. *rubra* (Crantz, Inst. i. 206, as a species).

Occurred as a casual on rubbish-heaps on Abingdon Racecourse, and by the railway near Maidenhead.

[**A. BABINGTONII**, of the *Well. Coll. List*, 1894, is an error.]

POLYGONACEAE, Lindl. Nat. Syst. ed. 2, 211 (1836).

POLYGONUM, Linn. Gen. n. 445 (Tournefort, Inst. t. 290).

P. Convolvulus, Linn. Sp. Pl. 364 (1753). *Black Bindweed*.

Top. Bot. 356. Syme, E. B. viii. 61, t. 1227. Nyman, 637. Fl. Oxf. 255. Native. Agrestal. Cornfields, garden ground, hedge-banks, &c.

Generally distributed over the cultivated portion of the county.

A. June–October.

First record. Without localities, *Russell's Catalogue*, 1839.

Var. **SUBALATUM**, V. Hall (var. *pseudo-dumetorum*, Watson, Lond. Cat. ed. 6 (1861) 19). Both the type and the variety are too frequent to need a detailed list of localities; the former is the common cornfield weed, the latter is chiefly found in rich garden-ground, hedges, and bushy places.

Polygonum Convolvulus is found in all the bordering counties.

P. dumetorum, Linn. Sp. Pl. ed. 2, 522 (1762).

Top. Bot. 357. Syme, E. B. viii. 62, t. 1228. Nyman, 636.

Native. Septal. Hedges and borders of woods. Very local. A. July–September.

First found at Tubney, Berkshire, by the author. See *Report of Bot. Exch. Club*, 343, 1891.

2. **Ock**. Plentiful on the border of Tubney Wood, where in the autumn it is a beautiful sight from the luxuriance of its growth. In the hedge of a field between Tubney Wood and Besilsleigh, not far from Appleton. Also on the border of White Hart Wood. On the garden-fence of H. F. Galpin, Esq., D.C.L., Boar's Hill.

4. Kennet. On the borders of a small coppice between Tilehurst and Reading.

5. Loddon. Near Sandhurst on the fence of a garden, but I think native.

P. dumetorum is recorded for Surrey, Hants, and Wilts; and the Rev. F. H. Woods has found it near Chalfont in Bucks.

P. aviculare, Linn. Sp. Pl. 362 (1753). *Common Knot-grass.*

Top. Bot. 356. Syme, E. B. viii. 64. Nyman, 639. Fl. Oxf. 258.

Native. Agrestal, &c. Cultivated and waste ground, road-sides, gardens, heaths, about field-paths, &c. Abundant and universally distributed. A. or B. June-October. It ascends to the top of Walbury Camp, 957 feet.

First record. Sonning, a specimen of var. *rurivagum*, Mr. S. Rudge, in *Herb. Brit. Mus.* 1800. *P. aviculare*, Mavor's *Agr. Berks.* 1809.

From the various kinds of situations in which it grows and its wide distribution it is necessarily found under many modifications. Syme described the Jordanian species which are recorded for Britain as varieties, but they by no means represent the series of variations.

Var. **AGRESTINUM** (Jord. in Boreau, Fl. du Centre Fr. ed. 3, ii. 559, as a species). *P. aviculare*, Linn. Herb. Syme, E. B. viii. 64.

This form is common and generally distributed in cultivated ground.

Var. **VULGATUM**, Syme, l. c. 65, t. 1229.

P. aviculare, Boreau, Fl. du Centre Fr. l. c. 559.

Common on waste ground, roadsides, footpaths, &c., as on Boar's Hill, &c. The older name for this is var. *brevifolium*, S. F. Gray, Nat. Arr. ii. 271, based on *Polygonum brevi angustoque folio*, Ray, Syn. 146, specimen in Herb. Oxf.).

Var. **ARENASTRUM** (Boreau, l. c.), as a species. Syme, l. c. t. 1230.

Waste ground, cornfields, evincing a preference for sandy soil.

1. Isis. Wytham. Cumnor. Faringdon. Colleshill. Longworth.

2. Ock. Boar's Hill. Kennington. Cole's Pits. Besilsleigh.

Abingdon. Tubney. 3. Pang. Tilehurst, *Tufnail*. Moulsoford.

Frilsham. Bradfield. Basildon. 4. Kennet. Theale. Greenham.

Kintbury. Hungerford. Snelsmore. Reading. 5. Loddon.

Sonning. Wokingham. Maidenhead. Bracknell. Hurley.

Var. *rotundifolium*, S. F. Gray, l. c., which is based on *Polygonum folio rotundo*, Pet. Herb. Brit. 10. 2 (vide specimen in Herb. Oxf.), is the older name.

Var. **MICROSPERMUM** (Jord. in Boreau, l. c. 560, as a species).

Syme, E. B. viii. 66. Apparently rare in sandy soil.

4. Kennet. Mortimer, *Tufnail*, 1895. Padworth.

5. Loddon. Wargrave, *Melville*. Near Maidenhead. Clewer.

Var. **RURIVAGUM** (Jord. in Boreau, l. c. 560, as a species).

Syme, E. B. viii. 67, t. 1231.

This rather pretty form, which appears to be a distinct sub-species, is found in dry sandy soil, as at

1. **Isis.** Longworth. Faringdon.
2. **Ock.** Boar's Hill. Cothill. Frilford. Besilsleigh. Didcot.
3. **Pang.** Bradfield. Tilehurst.
4. **Kenet.** Mortimer. Ufton. Hampstead Marshall.
5. **Loddon.** Sonning, *Rudge*. Shinfield, *Tufnail*. Hurley. Ambarrow. Sandhurst. Bracknell. Binfield. Bray. Rather frequent in this district.

The var. *angustifolium*, S. F. Gray, l. c., is earlier than the name given above; it is based on *Polygonum oblongo angustoque folio*, Ray, Syn. 146, n. 3.

A form which occurred on the saline meadow at Marcham had more fleshy leaves, and was thought by Mr. J. G. Baker, who was with me when it was gathered, to be var. *littorale* (Link). Mr. A. Bennett thought it was *agrestinum*, and the Rev. E. F. Linton considered it to be a form of var. *rurivagum*. Specimens were distributed through the Bot. Exch. Club in 1892.

Many plants do not satisfactorily come under any of the preceding varieties.

P. aviculare occurs plentifully in all the bordering counties.

P. Hydro Piper, Linn. Sp. Pl. 361 (1753). *Water Pepper*.

Hydro Piper, Geràrd, 361.

Top. Bot. 355. Syme, E. B. viii. 70, t. 1234. Nyman, 638. Fl. Oxf. 257. Native. Paludal. Wet places, ditches, stream-sides, damp hollows, and ruts in woods. Rather common, especially in heathy districts, and, as in Windsor Park, marking the damper places of the rides by its profuse growth. A. June-October.

First record. Sunninghill, *Sir Jos. Banks*, 1773. Sonning, *Mr. S. Rudge*, in *Herb. Brit. Mus.* 1800. Published as *P. hydro piper*, *Mavor's Agr. Berks*, 1809.

1. **Isis.** Wytham. Appleton, &c. Local and somewhat rare in this district.
2. **Ock.** Marcham, *Walker*. Bagley Wood. Ferry Hinksey. South Hinksey. Kennington. Tubney.
3. **Pang.** Oare. Cold Ash Common. Ashampstead. Tilehurst. Bucklebury. Fence Wood.

Too frequent in the damp woods of the Kennet and Loddon districts to require an enumeration of localities.

P. HYDROPIPER × **PERSICARIA**. This hybrid bears considerable resemblance to *P. mite*, from which it differs by its larger fruit, thicker spikelets, and more divaricate habit. Both of the assumed parents were in the vicinity. The nuts appear to be mostly infertile.

Near Hinksey and Hurst Green.

P. Hydro piper occurs in all the bordering counties.

P. minus, Huds. Fl. Angl. 148 (1762).

Persicaria minor, C. B. Pin. 101. *P. Persicaria*, var. *b*, Linn. Sp. Pl. 361. Top. Bot. 355. Syme, E. B. viii. 72, t. 1235. Nyman, 638. Fl. Oxf. 257. Curtis, Fl. Lond. fasc. i. t. 28
Native. Inundatal. Wet meadows, marshy ground. Local and rare.
A. July-October.

First record. Sunninghill, Sir Joseph Banks, in *Herb. Brit. Mus.* 1773.

1. *Isis*. In the Wytham meadows.

2. *Ock*. South Hinksey, *Boswell*. In St. Neat's Meadow at Abingdon, and in a field near Radley.

5. *Loddon*. Sunninghill, *Banks*. Risely. Coleman's Moor. Whistley Green. Near Loddon Bridge.

P. MINUS × **PERSICARIA** = *P. minor* × *Persicaria*, A. Braun, ap. Reichb. Fl. Exc. 571. Near Loddon Bridge.

P. MINUS × **MITE**, with both parents in St. Neat's Meadow, Abingdon, and Wytham.

P. MINUS × **HYDROPIPER**, occurs with both parents in St. Neat's Meadow, near Abingdon.

Messrs. H. and J. Groves have coincided in the naming of the two latter hybrids.

P. minus is only on doubtful record for Wilts, and is unrecorded for E. Gloucestershire.

P. mite, Schrank, Baier. Fl. i. 668 (1789).

Top. Bot. 355. Syme, E. B. viii. 73, t. 1236. Nyman, 638. Fl. Oxf. 257. Native. Paludal. Sides of ditches, streams, and ponds in low-lying situations. Local. A. June-September.

First recorded in *Mr. Baxter's MSS.* in 1839.

1. *Isis*. Wytham meadows. Near Eynsham.

2. *Ock*. South Hinksey, *Baxter*, abundant. Ferry Hinksey. Kennington.

3. *Pang*. Tidmarsh (North Street), *Tufnail*.

4. *Kennet*. Southcote. Inkpen. Mortimer. Greenham.

5. *Loddon*. Swinfield. Bulmarsh, *Tufnail*. Bray. Near Hendon House. Wargrave. Aston. Risely. Whistley Green.

P. MITE × **PERSICARIA** = *P. Persicaria-mite*, A. Br. in Doell's Rhein. Fl. 300. South Hinksey.

The var. **ANGUSTIFOLIA** of A. Braun has been found at South Hinksey, and white and red-flowered forms occur.

P. mite appears to be unrecorded for E. Gloucestershire.

P. lapathifolium, Linn. Sp. Pl. 360 (1753).

P. pensylvanicum, Huds. Fl. Angl. 148 (1762), and Curt. Fl. Lond. fasc. i. t. 73, not of Linn.

Top. Bot. 354. Syme, E. B. viii. 75, t. 1239. Nyman, 637. Fl. Oxf. 256.

Native. Agrestal. A weed in cultivated ground, damp waste places, manure-heaps, &c. Especially abundant in turnip and mangold crops and by river-banks on dredged mud. Common and widely distributed. A. June–October.

First record. Sunninghill, *Sir Joseph Banks*, in *Herb. Brit. Mus.* 1773.

Included in *Russell's Cat.* 1839.

Normally the flowers are of a greenish white, but occasionally it is found as var. *RUBRUM* (Gray, *Nat. Arr.* ii. 270), in which the perianths are red, as at Hinksey, Abingdon, Tilehurst, Windsor, &c.

Var. *INCANUM*, Gren. et Godr. *Fl. Fr.* iii. 47 = *P. incanum*, F. W. Schmidt, *Fl. Boem.* iv. 90, occurs not unfrequently on waste ground, as at Ferry Hinksey, Abingdon, Tilehurst, Windsor, &c.

P. LAPATHIFOLIUM × *PERSICARIA*. Plants are occasionally found having characters which are intermediate between *P. laphathifolium* and *P. Persicaria*. They are possibly hybrids. Mr. Tufnail tells me he noticed very intermediate forms at Mortimer.

P. laphathifolium occurs in all the bordering counties.

P. Persicaria, Linn. *Sp. Pl.* 361 (1753). *Spotted Snakeweed.*

Persicaria maculosa, Gerard, 361.

Top. Bot. 355. Syme, E. B. viii. 74, tt. 1237–8. Nyman, 637. *Fl. Oxf.* 257.

Native. Paludal, &c. Wet places, ditches, cultivated ground, marshes, waste places, &c. Found abundantly in all the districts, but less frequently in the uplands. June–October.

First record. Sunninghill, *Sir Joseph Banks*, 1773. Sonning, Mr. S. Rudge, in *Herb. Brit. Mus.* 1800. *P. Persicaria*, *Spotted Snakeweed*, *Mavor's Agr. Berks*, 1809.

P. Persicaria is a very variable plant. The flowers, which are normally dark pink, are found occasionally white, pale pink, or crimson. Specimens are also found which have a few glands on the perianth. When growing on goose-greens, where the plant is much bitten off, it assumes something of the appearance of *P. minus*.

Var. *INCANUM*, Gren. et Godr. *Fl. Fr.* iii. 48, is rather frequent on places where water has stagnated, and by river-sides. It occurs in all the districts.

Var. *ELATUM*, Gren. et Godr. l. c. = *P. biforme*, Wahl. *Fl. Suec.* i. 242, is a luxuriant shade form with brighter green, narrower leaves, and with stalked lateral spikes which are less divaricate than in the typical form. The peduncles are larger and more slender. It occurs with white and with red flowers. It has been noticed at Kennington, Abingdon, Aldermaston, Ruscombe, &c.

Var. *PROSTRATUM*, Brébisson, *Fl. de la Normandie*, 271, with decumbent stems, lanceolate leaves, marked with black above and white below, with short spikes, occurs on river-banks, as near Ilfey, &c.

A form with very large leaves occurred near Grandpont on waste ground.

P. Persicaria occurs in all the bordering counties.

P. maculatum, Trim. & Dyer, Journ. Bot. ix. (1871) 36, or Krock, Fl. Siles. Suppl. ii. 72 (Index Kewensis).

Polygonum pensylvanicum, var. *caule maculato*, Curtis, Fl. Lond. fasc. i.

t. 25. *Polygonum nodosum*, Bab. Man. Brit. Bot. ed. 6. *P. laxum*, E. B.

Suppl. t. 2822. *P. lapathifolium*, var. *maculatum*, Sibth. Fl. Oxf. 129.

Top. Bot. 354. Reichb. Ic. Pl. Crit. v. 56. Fl. Oxf. 256. Nyman, 637.

Native. Agrestal, paludal. River-banks, newly turned up mud on ditch and stream-banks, waste ground. Locally common, more frequent in low-lying districts. A. July–September.

First record. Sunninghill, Sir Joseph Banks [1773], in *Herb. Brit. Mus.*

1. Isis. Wytham.

2. Ock. Near Ferry Hinksey. Kennington. Sandford. Near Abingdon. Shippon. Grandpont. Radley. Cothill. Osney, the author in *Rep. of Bot. Rec. Club*, 1884.

3. Pang. Tilehurst. Tidmarsh, Tufnail. Moultsford.

4. Kennet. Aldermaston. Mortimer. Benham. Southcote.

5. Loddon. Sunninghill (*f. gracile*, teste Trimen & Dyer, l. c.), Banks. Coleman's Moor. Whistley Green. Windsor Park. Knowl Hill.

I have kept this as a distinct species, but I am by no means clear that it deserves that status. The size of the nuts, however, appears to be constantly smaller than in *P. lapathifolium*. The form *densum* as well as *gracile* is found.

P. maculatum occurs in all the bordering counties.

P. amphibium, Linn. Sp. Pl. 361 (1753).

Top. Bot. 354. Syme, E. B. viii. 77, t. 1241-2. Nyman, 637. Fl. Oxf. 256.

Native. Lacustral. Ponds, rivers, ditches, damp fields, and stream-sides. Frequent and widely distributed, and a conspicuous feature in the Thames vegetation. P. July–September.

First record. St. Dunstan's Green the terrestrial, and Sonning the aquatic form, Mr. S. Rudge, in *Herb. Brit. Mus.* 1800. Included in Russell's Cat. 1839.

The aquatic form, Syme, E. B. t. 1242, is common in all our larger streams and in ornamental sheets of water, such as Buscot, Buckland, Lockinge, Radley, Didcot, Uffington, Aldermaston, Hampstead Marshall, Marsh Benham, Southcote, Wargrave, J. C. Melvill; Ruscombe, Binfield, Bulmarsh, Bearwood, White Knights', Easthampstead, Wellington, Sandhurst, Sunninghill, Virginia Water, Windsor Park, Frogmore, &c.

The terrestrial plant, which is often in a flowerless condition, is the form var. **TERRESTRE**, Koch, Syn. Fl. Germ. 617, Syme, E. B. t. 1241,

which occurs abundantly on the banks of the Thames in all the districts, and is widely distributed in low-lying parts of the county.

Var. *COENOSUM*, Koch, l.c., is an intermediate stage of the aquatic and terrestrial forms with decumbent stem; it is rather frequent on muddy margins of ponds, &c., as at Iffley, Windsor, Abingdon, &c.

P. amphibium occurs in all the bordering counties.

P. Bistorta, Linn. Sp. Pl. 360 (1753). *Great Bistort.*

Bistorta major, Gerard, 322.

Top. Bot. 353. Syme, E. B. viii. 78, t. 1243. Nyman, 637. Fl. Oxf. 255.

Native. Pratal. Damp meadows and pastures. Very local, but oftentimes occurring in considerable quantity. In the Kennet district I think it is certainly a native. P. May-August.

First record. *P. bistorta*, Snakeweed, Dr. Noehden, *Mavor's Agr. Berks*, 1809.

1. **Isis.** Near Bablock Hythe.

2. **Ock.** In Osney Meadow, between the Mill and Ferry Hinksey, *Hewlett, in Bart. Phaen. Bot.* n. 5. (Probably in Oxfordshire.) A very rare plant; grows plentifully in an orchard by the churchyard, Blewbury, in an orchard near Nail's bridge, and in the parsonage orchard, *Lousley in Russell's Cat.* (The orchards in this district are often of considerable extent, as damsons, plums, and cherries are extensively grown.) Between Radley and Abingdon near the railway.

3. **Pang.** Bradfield, *Jenkinson.*

4. **Kennet.** Field near Wickham Chapel, *Dr. Bunny in Russell's Cat.* Wickham Heath, near the Church, *Weaver.* Weston, *Osmond.* Plentiful near Kirby Hall. Abundant near Little Common, near Hungerford. Abundant at Beenham. Midgham. Greenham. Enborne.

5. **Loddon.** Blackwater meadows, *Penny.* Arborfield, *Taylor.* Whistley Mill.

The flowers have a strong valerianaceous odour.

P. Bistorta is recorded for all the bordering counties.

FAGOPYRUM, Gaertn. Fruct. ii. 182 (Tournefort, Inst. t. 290).

****F. SAGITTATUM**, Gilib. Exer. Phyt. ii. 439 (1792). *Buckwheat.*

F. esculentum, Moench, Meth. 290 (1794). *F. Fagopyrum*, Karst. Deutsch. Fl. 522. *Polygonum Fagopyrum*, Linn. Sp. Pl. 364. *Fagopyrum*, Dodoens.

Comp. Cyb. Br. 556. Syme, E. B. viii. 59, t. 1226. Nyman, 639. Fl. Oxf. 258. Casual. Waste places, open places in woods where game is preserved. A. July-October.

First found in Berkshire by the *author* in 1882.

1. **Isis.** Wytham. Buscot. 2. **Ock.** Grandpont. Didcot. Pusey. Ferry Hinksey. 3. **Pang.** Garden weed at Beedon, *W. M. Rogers.*

4. **Kennet.** Sandleford, *Weaver.* Wickham, *Mrs. Batson.* Calcut Park. Near Southcote. Snelsmore. 5. **Loddon.** Arborfield,

Taylor. Reading, by the S. E. Railway. Twyford. Maidenhead Railway, Windsor. Sunninghill.

This plant is certainly an introduction, and as such has been found in all the bordering counties, but it does not become permanently established.

RUMEX, Linn. Gen. n. 407 (*Lapathum*, Tournefort, Inst. t. 287).

R. conglomeratus, Murray, Prod. Gott. 52 (1770). *Sharp Dock.*

R. acutus, Sm. Fl. Brit. i. 391, and of the Linn. Herb. but not of Sp. Pl. *R. paludosus*, With. Bot. Arr. ed. 3, ii. 354.

Top. Bot. 359. Syme, E. B. viii. 40, t. 1210 (poor figure). Nyman, 634. Fl. Oxf. 253.

Native. Paludal, &c. Ditches, sides of streams, damp waste ground. roadsides, &c. Common in all the districts except on the upper chalk downs and in the heathy ground of the south, and too frequent to need a list of localities. P. June–August.

First probably recorded under the name of *R. acutus* in *Russell's Cat.* 1839.

The leaves are often veined and tinged with red in the autumn (*f. sanguinea*), as at South Hinksey, Marsh Benham, Warfield, &c.

R. CONGLOMERATUS × **CRISPUS**. This hybrid has been seen near South Hinksey.

Rumex conglomeratus is found in all the bordering counties.

R. maritimus, Linn. Sp. Pl. 335 (1753). *Golden Dock.*

Top. Bot. 360. Syme, E. B. viii. 42, t. 1212. Nyman, 635. Fl. Oxf. 254.

Native. Paludal. Marshy places, margins of rivers, &c. Rare. B. July–September.

First certainly recorded by the author in 1890.

2. **Ock.** By the river Thames near Sandford Lasher. [In considerable quantity near the Oxford Gas-works, just within Oxfordshire, where Mrs. F. T. Richards drew my attention to it.]

4. **Kennet.** [Amphitheatre at Silchester, *Bicheno in Winch MSS.* This record was omitted by Mr. H. C. Watson when he copied out the Winch MSS. for the *New Bot. Guide*. Perhaps he thought it was incorrect. It certainly does not occur there now.]

R. maritimus occurs in Oxfordshire and in Bucks (Boarstall, *Rev. H. J. Riddelsdell*, and Chalfont, *Rev. F. H. Woods*), and is recorded for Surrey.

[**R. LIMOSUS**, Thuill. Fl. Par. ed. 2, 182 (1799).

R. palustris, Sm. Fl. Brit. i. 394 (1800). *R. maritimus*, Curt. not of Linn.

Top. Bot. 360. Syme, E. B. viii. 43, t. 1213. Nyman, 634. Fl. Oxf. 254.

Is recorded for Oxfordshire (where I have not recently seen it) and from Surrey.]

R. sanguineus, Linn. Sp. Pl. 334 (1753).

Lapathum sativum sanguineum, Ger. Em. 390. *R. acutus*, Curtis, Fl. Lond. fasc. iii. t. 21.

Top. Bot. 359. Syme, E. B. viii. 41, t. 1211 (bad fig., if indeed correct).

Nyman, 634. Fl. Oxf. 253.

Native. Sylvestral, pascual. Woods, thickets, hedges, waysides.

Locally common. P. June-September.

First record of the aggregate species. *R. sanguineus*, Dock Blood-wort, Dr. Noehden, *Mavor's Agr. Berks*, 1809.

The true Linnean plant, which has the stem and veins of the leaves blood-red from their first appearance, is the var. *genuinus* of Koch, Syn. Fl. Germ. 613 (1837); and the var. *coloratus* of Gren. et Godr. Fl. Fr. iii. 38 of *R. nemorosus*, I have not seen in the county: it is true that Mr. J. Lousley records it as 'Before some of the doorways and in the gardens at Blewbury' in *Russell's Cat.* 1839, but the identity is somewhat doubtful, even if the plant were wild.

Our common plant is the var. *viridis*, Sibth. Fl. Oxf. 118 (1794) = the *R. nemorosus*, Schrad. in Willd. Enum. Hort. Berol. 397, which is kept as a distinct species in Index Kewensis. Syme says, and I can corroborate the fact, that var. *genuinus* comes true from seed, but he states that the difference is too slight to constitute a species.

1. **Isis.** Wytham. Appleton. Cumnor.
2. **Ock.** South Hinksey. Bagley. Marcham. Radley. Wittenham. Blewbury. Aston Tirrel.
3. **Pang.** Sulham, *Tufnail*. Curridge. Oare. Pangbourn. Bucklebury.
4. **Kennet.** Greenham. Snelsmore. Newbury. Padworth. Aldermaston. Hungerford, &c.
5. **Loddon.** Shinfield, *Tufnail*. Early. Swinley. Windsor Park. Binfield. Ruscombe.

The green-veined Dock occurs in all the bordering counties.

R. pulcher, Linn. Sp. Pl. 336 (1753). *Fiddle Dock*.

Lapathum pulchrum Bononiense sinuatum, J. Bauhin, Hist. 2, 988.

Top. Bot. 360. Syme, E. B. viii. 44, t. 1214. Nyman, 634. Fl. Oxf. 254.

Native. Viatical. Roadsides, churchyards, old turfy pastures, &c.

Very local. P. June-October.

First recorded by Mr. W. Pamplin in *Phyt.* 157, 1654.

1. **Isis.** Buckland. In Faringdon Churchyard.
2. **Ock.** Cothill. Frilford. Shippon. Marcham. Cholsey. Between Marcham and Frilford.
3. **Pang.** Streatley, *Pamplin*.
5. **Loddon.** Between Remenham Farm and the River, *Stanton*. Near Shurlock Row.

R. pulcher occurs in all the bordering counties. (I have seen it in Buckinghamshire at Denshanger.)

R. obtusifolius, Linn. Sp. Pl. 335 (1753). *Broad-leaved Dock*.

R. Friestii, Gren. et Godr. Fl. Fr. iii. 36.

Top. Bot. 359. Syme, E. B. viii. 46, t. 1215. Nyman, 634. Fl. Oxf. 253. Native. Pascual, &c. Pastures, waysides, waste places, low meadows, orchards, &c. Very common and widely distributed. P. May-September.

First record. Common about Blewbury and Hampstead Norris, J. Lousley in Russell's Cat. 1839. With *Aecidium rubellum*, Pers., on it about the banks of the Isis, Baxt. Phaen. Bot. 454, 1843.

R. obtusifolius × *R. sanguineus*, var. *viridis* = × *R. Duftii*, occurred near South Hinksey.

R. obtusifolius × *conglomeratus* has been seen near Blackwater.

R. obtusifolius occurs in all the bordering counties.

R. acutus, Linn. Sp. Pl. 335 (1753), and Index Kewensis.

R. pratensis, Mert. & Koch, Deutsch. Fl. ii. 609. *R. obtusifolius* × *R. crispus*.

Top. Bot. 358. Syme, E. B. viii. 47, t. 1216. Nyman, 634. Fl. Oxf. 254.

Viatical. Hedgesides, fields, and bushy places. Local and rather rare, but probably often overlooked. P. June-August.

First recorded by Mr. W. T. Dyer in Rep. of Bot. Exch. Club, 1867. Probably Mrs. Russell's record of '*R. acutus*, Ham Marsh,' in the Newbury Catalogue of 1839, and the plant included by Mr. T. B. Flower in Robertson's Env. of Reading, meant *R. conglomeratus*, which is the *R. acutus* of Sm. Fl. Brit.

1. **Isis.** Near Cumnor.

2. **Ock.** *R. pratensis*, Boar's Hill, W. T. Dyer, l.c.

3. **Pang.** Near Hermitage.

4. **Kennet.** Beedon. Winterbourne, W. M. Rogers. Near Enborne. Near Silchester.

5. **Loddon.** Sonning, Tufnail. Shinfield Green. Risely. Near Sunninghill.

R. acutus is recorded for all the bordering counties except Bucks, but I have seen it in that county near Stoke Poges.

R. crispus, Linn. Sp. Pl. 335 (1753). Common Dock.

Top. Bot. 358. Syme, E. B. viii. 49, t. 1218. Nyman, 633. Fl. Oxf. 252.

Native. Agrestal. Cultivated ground, pastures, waste ground, riversides, &c. Abundant through the county, and our commonest species of Dock. P. May-October.

First record. *R. crispus*, Curled Dock, Mavor's Agr. Berks, 1809.

Var. **TRIGRANULATUS**, Syme (Boswell), Rep. of Bot. Exch. Club (1872-4) 37.

2. **Ock.** Grandpont. Abingdon. Wantage. Near Cothill.

R. crispus occurs abundantly in all the bordering counties.

R. Hydrolapatheum, Huds. Fl. Angl. ed. 2, 154 (1778). *Great Water Dock*.

R. Britannica, Huds. Fl. Angl. 135 (1762), not of Linn. *R. aquaticus*, Sm. E. B. t. 2104, not of Linn. *Hydrolapathum majus*, Park. 1225.

Top. Bot. 357. Syme, E. B. viii. 51, t. 1220. Nyman, 633. Fl. Oxf. 252. Native. Paludal. Sides of rivers, streams, canals, and ditches.

A prominent feature of the Thames vegetation. P. May-Sept. First record. *R. hydrolapathum*, Mavor's Agr. Berks, 1809.

'At Radcot Bridge we direct attention to the Great Water Dock, the luxurious growth of whose flamboyant foliage gives to it a gigantic character among its lighter and more graceful neighbours,' Mrs. S. C. Hall's *Book of the Thames*.

In many paintings of Thames scenery the Great Water Dock is conspicuous. Keeley Halswelle appeared particularly fond of depicting this species.

A plant has been noticed in St. Neat's Meadow at Abingdon, in which the base of the leaves is rounded and not decurrent; but the fruit does not agree with the drawing of *R. maximus*, Schreb. in Schweigg and Korte, Fl. Erlang. i. 152, which is kept as a distinct species in *Index Kewensis*.

Var. *LATIFOLIUS*, Borrer, in Lond. Cat. ed. 8. (*R. maximus*, Schreb. l. c.?)

To this I refer a form of *R. Hydrolapatheum*, which occurred in ditches near Theale and Midgham.

By some authors *R. maximus* is considered to be a hybrid of *R. Hydrolapatheum* and *R. aquaticus*, but that is not the case with our British plant, as *R. aquaticus* does not occur in South Britain. The Abingdon plant may be *R. Hydrolapatheum* × *conglomeratus*, as the tint of the leaves was different from those of the former species.

R. Hydrolapatheum occurs in all the bordering counties.

R. Acetosa, Linn. Sp. Pl. 337 (1753). *Common Sorrel*.

Oxalis sive Acetosa, Gerard, 319.

Top. Bot. 361. Syme, E. B. vii. 54, t. 1223. Nyman, 635. Fl. Oxf. 254.

Native. Pascual. Pastures, meadows, woods. Very frequent and generally distributed. The meadows of the Thames valley often exhibit this species in considerable abundance. P. April-July.

First recorded in Mavor's Agr. Berks, 1809. *R. Acetosa*, gathered in Berkshire, Sm. Engl. Fl. iv. 266, 1828.

R. Acetosa occurs abundantly in all the bordering counties.

R. Acetosella, Linn. Sp. Pl. 338 (1753). *Sheep's Sorrel*.

Acetosa minor lanceolata, Park. 744. *Oxalis tenuifolia*, Gerard, 320.

Top. Bot. 361. Syme, E. B. viii. 56, t. 1224. Nyman, 636. Fl. Oxf. 255.

Native. Ericetal. Dry fields, heaths, parks, waysides, locally abundant.

Chiefly confined to light sandy or gravelly soils. P. March–August. First record. *R. acetosella*, *Mavor's Agr. Berks*, 1809.

Var. *ANGUSTIFOLIA*, Koch, Syn. Fl. Germ. 616 (1837), appears to be a starved form; it has been seen on Mortimer and other dry heathy places. The leaves are linear, or narrow lanceolate with one or both auricles absent.

Although the flowers are so inconspicuous, yet from the plant occurring in countless numbers, a very beautiful effect is sometimes produced by it. I once saw a sheet of this plant in the portion of Windsor Park near Virginia Water which, when lighted up by the setting sun, shone with a glorious orange-red tint, quite unlike that of any other British plant. In the spring of 1896 a very fine effect was caused by these flowers in arable fields near Tidmarsh.

R. Acetosella occurs plentifully in all the bordering counties.

ASARACEAE, Link, Enum. ii. 1 (1822).

Aristolochiaceae, Blume, Enum. Pl. Javae, i. 81 (1830).

ASARUM EUROPAEUM, Linn. Sp. Pl. 442 (1753).

Asarabacca.

A. vulgare, Park. 266.

Top. Bot. 362. Syme, E. B. viii. 90, t. 1249. Nyman, 645. Fl. Oxf. 260.

Error? Woods. Very rare, if indeed it occurs in the county. P. May.

First record. Mountainous woods, rare. Said to have been found by the roadside between Henley and Maidenhead, *Dr. Abbot in E. B.* n. 1083, 1802.

This is repeated in the *Bot. Guide* in 1805. In *Lyson's Magna Brit.* 1806, it is said to grow in the beech woods between Henley and Maidenhead. My search in the beech woods on the Berkshire side of the Thames has been unsuccessful. Mr. Stanton, who lives in the vicinity, has also been unable to find it. Dr. Abbot's locality was almost certainly in Bucks, and one of the two places where it is said to have been found in that county (see *Journ. Bot.* (1870) 85) appears to be a wooded chalk-hill in which *Buxus*, *Prunus Lauro-Cerasus*, *P. lusitanica*, and other ornamental shrubs have been planted.

Asarum is reported for Bucks and Wilts (where it may be native); in its Oxfordshire locality, where it was only a relic of cultivation, it has been long extinct.

****ARISTOLOCHIA CLEMATITIS**, Linn. Sp. Pl. 962 (1753).

Birthwort.

Comp. Cyb. Br. 557. Syme, E. B. viii. 91, t. 1250. Nyman, 645. Fl. Oxf. 260.

Alien. Waste places. Hedges. Rare, if indeed it occurs in the county.

Shrub. June–September.

The following are the recorded statements respecting its occurrence in Berkshire, but I am unable to confirm them.

Aristolochia longa. Long Birthwort beyond Redding, [How's] *Phyt. Brit.* 1650. In the copy of this work in the Bodleian Library, which belonged to E. Ashmole, the locality is given 'In Mr. Vachell's house in Reading, *E. A. and J. W.*' In Coles' *Adam in Eden* of 1657 the record from How's *Phytologia* is repeated.

Aristolochia longa. Long Birthwort near Redding, sed in loco ubi quondam fuit Monasterium, Mr. Brown, *Merrett's Pinax*, 10, 1666. In a hedge near Windsor, Mr. Gotoled in *Bot. Guide*, 1805.

A. Clematitis occurs at Godstow in Oxfordshire close to the Berkshire boundary, and is recorded for Hampshire.

DAPHNACEAE, J. St. Hil. Exp. Fam. i. 180 (1805).

THYMELAEACEAE, Reichb. Nomencl. 64 (1841).

DAPHNE, Linn. Gen. n. 436 (*Thymelaea*, Tournefort, Inst. t. 366).

D. Mezereum, Linn. Sp. Pl. 356 (1753). *Mezereon*, Spurge Olive.

Chamaelea Germanica, sive *Mezereon*, Gerard, 1216.

Top. Bot. 362. Syme, E. B. viii. 84, t. 1246. Nyman, 640. Fl. Oxf. 259.

Native. Sylvestral. Dense woods and thickets. Rare and local.

Shrub. March-April.

First record. *D. mezereum*. Hinksey Wood, near Oxford, Dr. Williams in *Mavor's Agr. Berks*, 1809.

1. **Isis.** Near Appleton, Dr. Williams in *Purt. Midl. Fl.* 1821. Eaton Stibble, H. Barrett in *Baxt. Phaen. Bot.* n. 96. Probably a native at Appleton, where I have seen it, although it had been reported as extinct, in the Lower Common.
2. **Ock.** Hinksey woods, Dr. Williams. [Probably bird sown.] Tubney, Dr. Masters.
3. **Pang.** Park Coppice and Frilsham Common are the only places where this grows wild, *Lousley in Russell's Cat.* Hampstead, *Lousley in Hewett's Hist.* Near Hampstead Norris in dense wood.
4. **Kennet.** Burghfield Common near Padworth road, in the birch plantation near the Three Firs, *Holland*.
5. **Loddon.** Bisham Wood, *Latimer Clark*. In the thicket nearly opposite the Whitening factory at Warren Row, *Stanton*!

D. Mezereum is native in Oxfordshire and Bucks, and is also reported from Surrey, Hants, and Wilts.

D. Laureola, Linn. Sp. Pl. 356 (1753). *Spurge Laurel*.

Laureola, Dodoens, *Pempt.* (1616).

Top. Bot. 362. Syme, E. B. viii. 86, t. 1247. Nyman, 640. Fl. Oxf. 258.

Native. Sylvestral. Woods, thickets, hedgerows, chiefly on calcareous or chalky soil. Local. Shrub. February-April.

First record. Near Oxford, Sir Joseph Banks in *Herb. Brit. Mus.* 1760.

Published as *D. laureola*, Mr. Bicheno, in *Mavor's Agr. Berks*.

1. **Isis.** Abundant in Wytham Wood, whence there is a specimen collected by Prof. M. A. Lawson in *Herb. Oxf.* Cumnor.
2. **Ock.** Manor Farm, Denchworth, *Wait*. Cothill. Tubney.
3. **Pang.** Beech Wood. Park Coppice and other woods about Hampstead Norris, *Lousley in Russell's Cat.* Streatley, *Pamplin*. Westbrook, *W. M. Rogers*. De La Bere, Pangbourn, *Tufnail*. It is very abundant in woods about Hampstead Norris, and it also occurs at Bucklebury, Hawpit Farm, near Basildon, and Sulham.
4. **Kennet.** In Love Lane near Newbury and at Welford, *Bicheno, l.c.* Weston, *Osmond*. Elcot, *Reeks*. Near Donnington.

5. Loddon. Rose Hill. Park Place, Stanton. Wargrave, Climençon. Culham. Bisham.

D. Laureola occurs in all the bordering counties.

LORANTHACEAE, D. Don, Prod. Fl. Nepal. 142 (1825).

VISCUM, Linn. Gen. n. 979 (Tournefort, Inst. t. 380).

V. album, Linn. Sp. Pl. 1023 (1753). *Mistletoe*.

Top. Bot. 207. Syme, E. B. iv. 189, t. 635 bis. Nyman, 320. Fl. Oxf. 145. Native. A parasitic shrub on trees. Local and rather rare. April-May.

First record. *V. album*, Dr. Noehden in *Mavor's Agr. Berks*, 1809.

1. *Isis*. Abundant at Appleton, particularly on willows, *Miss Hoskins in Baxt. Phaen. Bot.* n. 40. Carswell, *Miss M. Niven*.
2. *Ock*. Denchworth, *Wait*. Appleford, *Lousley in Russell's Cat.* 1839.
3. *Pang*. Plentiful in the orchards at Bucklebury, at Hampstead Norris, at Boxford, and several other places, *Lousley, l. c.* Purley. Maple Durham, on both sides of the Thames, *Tufnail*.
4. *Kennet*. There is a good quantity on the Limes in the Avenue at Welford Park. It occurs on *Crataegus* and on *Acer campestre* in Hampstead Marshall Park.
5. Loddon. Abundantly and luxuriantly on an avenue of lime-trees in front of Sir W. East's place, Hurley, *Dr. Mavor*. Park Place, common on Poplar and Thorn, *Stanton*. Eyot, near Cookham, on a crab-tree. Cliveden, on Black Poplar (? Bucks), *G. D. Leslie in Our River*, 189. Bulmarsh, *Tufnail*. On poplar at Harleyford. *Viscum* is recorded for all the bordering counties.

SANTALACEAE, R. Br. Prod. Nov. Holl. 350 (1810).

THESIUM, Linn. Gen. n. 258.

T. humifusum, DC. Fl. Fr. Supp. 366 (1815).

T. linophyllum, Sm. E. B. t. 247, not *T. Linophyllum*, Linn.

Top. Bot. 362. Syme, E. B. viii. 88, t. 1248. Nyman, 643. Fl. Oxf. 259. Native. Pascual. Parasitic on the roots of *Asperula*, *Scabiosa*, *Festuca*, &c., on dry chalky banks and downs. Locally common. P. June-August.

First record. *T. linophyllum*, Hurley, Mr. Gotobed in the *Bot. Guide*, 1805.

1. *Isis*. Between Woolstone and Ashbury, *Bellamy*. Idstone.
2. *Ock*. Blewburton Hill. Lowbury. Uffington. Letcombe. Wantage Downs. Cuckhamsley Barrow. Childrey. Kingston Lisle. Chilton.
3. *Pang*. On Streatley Hill, *Rev. Mr. Scholfield in Mavor's Agr. Berks*, 1809. Still there in 1896. Tilehurst, *Tufnail*. East Ilsley. Compton. King Standing Hill. Basildon. Purley. Sulham.

4. Kennet. Ilsley Downs, *W. M. Rogers*. Letcombe. Near Farnborough. Downs near the White Horse. Lambourn Downs.
5. Loddon. Park Place, *Stanton*. On Chalk banks near Hurley, *Gotobed*.

Thesium is recorded from all the bordering counties.

EUPHORBIACEAE, J. St. Hil. Exp. Fam. ii. 276 (1805).

EUPHORBIA, Linn. Gen. n. 536 (*Tithymalus*, Tournefort, Inst. t. 18).

E. helioscopia, Linn. Sp. Pl. 459 (1753). *Sun Spurge*.

Helioscopios, Pliny. *Tithymalus Helioscopius*, Ger. 401.

Top. Bot. 363. Syme, E. B. viii. 99, t. 1254. Nyman, 651. Fl. Oxf. 261. Native. Agrestal. Waste and cultivated ground. Frequent in gardens and cornfields, and among crops of turnip and mangold. Generally distributed. A. February–September.

First record. With *Uredo Euphorbiae*, Hook. on it about Oxford, *Bart. Phaen. Bot.* n. 368, 1840.

It occurs in all the bordering counties.

[**E. PLATYPHYLLOS**, Linn. Sp. Pl. 460 (1753). Syme, E. B. viii. 100, t. 1255.

Common in cornfields, J. Lousley in *Russell's Cat.* 1839. An error; either *E. Helioscopia* or *E. exigua* was the plant seen.

Mr. Britten states that the plant of the Wellington College List was *Milegrana*. A curious error.

E. platyphyllos is a plant we might expect in Berkshire, since it is recorded for all the bordering counties, although I have never met with it in Oxfordshire. It is either a decreasing species or some of the older records were mistakes.]

E. amygdaloides, Linn. Sp. Pl. 463 (1753). *Wood Spurge*.

Tithymalus Characias Amygdaloides, Gerard, 403.

Top. Bot. 366. Syme, E. B. viii. 105, t. 1260. Nyman, 651. Fl. Oxf. 261. Native. Sylvestral. Woods, hedgerows, and thickets. Locally common and widely distributed. P. April–July. A conspicuous feature in our woodland scenery, and too general in our woodlands to need a list of localities.

First record. *E. amygdaloides*, Dr. Noehden in *Mavor's Agr. Berks*, 1809.

It occurs with a very varying amount of pubescence; the extreme states are very different.

E. amygdaloides occurs in all the bordering counties.

[**E. ESULA**, Linn. Sp. Pl. 461 (1753).

Esula, Rivin. Tetr. Irr. 113. Syme, E. B. viii. 106, t. 1261. Comp. Cyb. Br. 558.

Occurs on the Buckinghamshire bank of the Thames between Henley and Marlow, in a well-established if not native condition, where it has been known to grow for the last fifty years. Also recorded for Surrey and Wilts.]

***E. CYPARISSIAS**, Linn. Sp. Pl. 461 (1753).

Comp. Cyb. Br. 558. Syme, E. B. viii. 107, t. 1262. Nyman, 652. Fl. Oxf. 261.

Denizen. Pascual. Grassy slopes on the Chalk. Very rare. P. July–August.

First recorded by Mr. F. Tufnail in the *Flora of Oxfordshire*, 1886.

3. Pang. On an open grassy slope beneath Sulham Wood, *Tufnail*. It still occurs there, but I can make no suggestion as to its possible introduction.

4. Kennet. Brimpton. Sulhampstead Park, *Weaver*.

5. Loddon. Included in the *Well. Coll. List*, but it is to be feared not from a Berkshire locality. The Rev. C. W. Penny does not know of its occurrence in the county.

The plant is recorded for Oxfordshire and Hampshire.

E. Peplus, Linn. Sp. Pl. 456 (1753). *Petty Spurge*.

Peplus sive rotunda Esula, Gerard, 406.

Top. Bot. 365. Syme, E. B. viii. 111, t. 1265. Nyman, 654. Fl. Oxf. 265.

Native. Agrestal. Cultivated ground. Common in all the districts, and as a weed in gardens in Reading, &c. A. May–November.

First recorded in *Russell's Catalogue*, 1839.

E. Peplus is found in all the bordering counties.

E. exigua, Linn. Sp. Pl. 456 (1753). *Small Spurge, Dwarf Spurge*.

Esula exigua, Tragus, Hist. 296. See Ger. Em. 503.

Top. Bot. 365. Syme, E. B. viii. 112, t. 1266. Nyman, 655. Fl. Oxf. 262.

Native. Agrestal. Cornfields, waysides, garden ground, &c. More common than the preceding species. A. June–November.

First recorded in *Russell's Catalogue* of 1839.

Var. *RETUSA* (DC. Fl. Fr. 358, as a species).

Apparently rare. I have only noticed it in a field between Egrove and Wantage, whence I distributed specimens through the *Bot. Exch. Club* in 1893.

Mr. Tufnail tells me he gathered fine specimens at Wokefield.

It differs chiefly in its mucronate and truncate leaves; in the type they are acute. A biennial form also occurs occasionally.

E. exigua occurs in all the bordering counties.

***E. Lathyris**, Linn. Sp. Pl. 457 (1753) (misprinted *Lathyrus*). *Caper Spurge*.

Lathyris, Lobel.

Comp. Cyb. Br. 558. Syme, E. B. viii. 113, t. 1267. Nyman, 655.

Fl. Oxf. 262. E. B. t. 2255 is drawn from a Berkshire specimen gathered in 1810.

Denizen or native. Sylvestral. Woods. Very rare. P. June–Aug.

First record. *E. lathyris*, Dr. Beeke in *Bot. Guide*, 1805.

1. *Isis*. Near Kelmscott, on the Berkshire side, but only as a garden escape.

2. Ock. Near Uffington as an escape.
3. Pang. Streatley, *Newbould*, not wild.
4. Kennet. Certainly wild, and perhaps indigenous in several places in and near the parish of Ufton, near Reading, springing up in dry stony thickets, periodically for a year or two after the bushes have been cut, and till choked by briars, &c., *Rev. Dr. Beeke in Bot. Guide*, 27, 1805. Naturalized on several banks in the same neighbourhood, *Lyson's Magna Brit.* 1806. Also in *Mavor's Agr. Berks and Sm. Engl. Fl.* Abundant there in 1896.
5. Loddon. About cottages near Park Place, *Stanton*. Shinfield in thicket, *Tufnail*, probably an escape. Sindlesham. Railway near Maidenhead. In both cases escaped from cultivation.

E. Lathyrus is recorded as a more or less naturalized plant for Oxford, Surrey, Hants, and Wilts.

BUXUS, Linn. Gen. n. 934 (Tournefort, Inst. t. 345).

***B. SEMPERVIRENS**, Linn. Sp. Pl. 983 (1753). *Box.*

Comp. Cyb. Br. 558. Syme, E. B. viii. 95, t. 1252. Nyman, 646. Fl. Oxf. 260. Alien. Shrubberies, pleasure grounds, &c. Shrub. April-May.

'The last remains of Boxgrove in Sulham parish near Reading, whence the country probably took its name, were grubbed up about forty years ago,' *Gough's Camden*, 155, 1789.

Prof. C. C. Babington, Jan. 28, 1853, sent a note to the Phytologist Club as follows: 'Mr. Watson, in his *Cybele*, ii. 366, appears very much inclined to consider the Box-tree as not originally a native of England. The following extract from the beginning of Asser's *Life of King Alfred* appears to show that it was plentiful in Berkshire 1000 years since. His words are, "Berroc-scire; quae paga taliter vocatur a 'berroc' sylvia ubi buxus abundantissime nascitur.'" See *Phyt.* iv. (1853) 873.

In the edition of Camden published in 1610, it states that 'Asterius Menevensis deriveth the name [of the county] from a certaine wood called Berroc, where grew good store of Box.'

At Buckland there are some very fine specimens of the Box, and it is also well grown at Besilsleigh, Kingston Bagpuze, and at Park Place, where Mr. Stanton tells me it reproduces itself from seeds in the woods. In *Mavor's Agr. Berks* it is said to grow near Wallingford.

The Box is a possible native of Surrey at Boxhill, and on the Chilterns near Velvet Lawn and near Dunstable, Bucks. In the other bordering counties it is certainly introduced.

MERCURIALIS, Linn. Gen. n. 998 (Tournefort, Inst. t. 308).

M. perennis, Linn. Sp. Pl. 1035 (1753). *Dog's Mercury.*

Top. Bot. 366. Syme, E. B. viii. 114, t. 1268. Nyman, 647. Fl. Oxf. 260.

Native. Sylvestral. Woods, thickets, hedgerows. Common and generally distributed, covering extensive areas of our woods which are situated on a stiff soil. P. January 26-May.

First record. *Mercurie*. The male and the Female grow in all woods about Oxford especially in Merley Wood, MS. in *Lyte's Herball*, 1660.

Published as *M. perennis* in *Mavor's Agr. Berks*, 1809, where it is

said to be noxious to sheep and to dye blue. About Oxford with *Uredo confluens*, Grev., *Bart. Phaen. Bot.* n. 143, 1835. It occurs on Walbury Camp at over 900 feet elevation.

A very narrow-leaved form of the female plant was found in a wood near Cumnor.

M. perennis is found plentifully in all the bordering counties.

**M. annua*, Linn. Sp. Pl. 1035 (1753). *French Mercury*.

Top. Bot. 366. Syme, E. B. viii. 115, t. 1269. Nyman, 647. Fl. Oxf. 260. Colonist. Agrestal. Waste and cultivated ground in rich soil.

Very local and absent from the north of the county. A. July-September.

First record. On the loop railway line just below Reading, Mr. F. Tufnail in the *Flora of Oxfordshire*, 1886.

4. Kennet. Reading railway, as above. Casual on the railway at Newbury one year only.

5. Loddon. Near Windsor, *Everett*. Finchampstead, in a cornfield. Hurley. Common in garden and arable ground at Bisham.

M. annua, which is only the merest casual in Oxfordshire, is recorded for all the other bordering counties except East Gloucestershire. I have seen it at Marlow in Bucks.

URTICACEAE, Reichb. Consp. 83 (1828).

ULMACEAE, Mirbel, Elém. ii. 905 (1815).

ULMUS, Linn. Gen. 281 (Tournefort, Inst. t. 372).

U. campestris, Linn. Sp. Pl. 225 (1753), and Herb.¹ *Wych Elm*.

U. montana, Stokes in With. Bot. Arr. ed. 2, i. 259 (1787). Sm. E. B. t. 1887 (1808). *U. glabra*, Huds. Fl. Angl. 95 (1762), not Miller.

Top. Bot. 368. Syme, E. B. viii. 141, t. 1287. Nyman, 659. Fl. Oxf. 263. Native or denizen. Woods and hedges. Tree. March-April.

First record. The variety called the *Wych Elm* grows to a very large size in the vicinity of Newbury, *Mavor's Agr. Berks*, 1809. *U. major*, Dutch Cork-barked Elm. Common in many places, generally planted in streets and waste places, and before houses, &c., as at Aston [Tirrel], Mr. Lousley in *Russell's Cat*.

In Berkshire, where it is scattered through the county chiefly in the vicinity of dwellings, the *Wych Elm* has less of the character of a native tree than *U. sativa*. It is very difficult to speak with definite knowledge as to the indigenuity of many of our British trees in their present habitats. In Berkshire it is too frequent to require a list of localities.

¹ I have followed Prof. A. von Kerner in using this name for the *Wych Elm*. See *Schedae ad Floram Exsicc. Austr.-Hung.* i. 98.

The great tree at Fyfield belongs to this species. Matthew Arnold refers to it in the well-known lines,

‘ Maidens, who from the distant hamlets come
To dance around the Fyfield Elm in May.’

Several varieties of the Wych Elm have been described as species.

Var. *MAJOR* (Smith, E. B. t. 2542, as a species). (The figure of one of the samaras is incorrect, as the seed is represented too near the apex of the wing.) Has large rough leaves and corky excrescences on the branches, and appears to be always a planted tree in Berkshire. The leaves are often marked with whitish patches on the upper surface. I have seen it at Wýtham, near Maidenhead, near Wokingham, &c.

Var. *NITIDA* = *U. montana*, var. *nitida*, Syme, l. c., occurs at Besils-leigh, &c. The leaves are shining, and the branches free from corky excrescences.

U. campestris occurs in all the bordering counties.

**U. sativa*, Miller, Gard. Dict. ed. 8, n. 3 (1768). *The Elm.*

U. suberosa, Ehrh. Beitr. vi. 87, Moench, Verz. Ausl. Baeume, 136.

U. surculosa, Stokes, Bot. Mat. Med. ii. 35 (1812). *U. campestris*, Huds. Fl. Angl. 94 (1762), and of English authors, not of Linn.

Top. Bot. 368. Syme, E. B. viii. 137, t. 1285. Nyman, 659. Fl. Oxf. 264. Denizen. Hedges, woods, fields, parks, &c. Abundant, and one of the conspicuous features in our valley scenery. Generally distributed, except on the Chalk uplands and the sandy heaths and commons. Tree. March–April.

First record. *U. campestris*, The Common Elm. In the hedgerows of the Vales of the White Horse and the Kennet and round villages, *Mavor's Agr. Berks*, 1809. *U. suberosa*, common in hedges in both hill and vale, Lousley in *Russell's Cat.* 1839. With very corky bark near Cumnor Hurst, *W. T. Dyer*, 1865.

The avenue of fine Elms at White Knights' is alluded to in *The Beauties of England*, 108, 1801.

‘Round Newbury they flourish very much. On the estate of the late Sir John Andrews, a few years ago, elms were cut that measured from 17 to 20 feet in circumference, at one foot from the ground. . . . They appear to have been planted about 130 years,’ *Mavor's Agr. Berks*, 1809.

There is a fine specimen of *U. sativa* near Childswell Farm on the way to Boar's Hill, but the trunk is quite hollow, and there are some handsome trees in Coleshill Park. A large specimen stands in the private portion of Windsor Park. The Broad Walk at Windsor consists chiefly of this tree.

A tree, 130 feet high, is mentioned by Loudon in the *Arboretum* as occurring in Strathfieldsaye Park (just outside our county).

Matthew Arnold alludes in *Thyrsis* to a tree which grows nearly on

the summit of the Boar's Hill range, which is a prominent object from the Ridgeway—

‘To where the elm-tree crowns

The hill behind whose ridge the sunset flames ; . . .

The signal-elm, that looks on Ilsley Downs,

The Vale, the three lone weirs, the youthful Thames. . . .

That single elm-tree bright

Against the west.’

But the tree which is now associated with Matthew Arnold is really an oak of a somewhat unusual shape, reminding one rather of the Italian Pine.

A considerable number of forms of the Elm have been described, but at present there is very considerable divergence of opinion respecting the description and the synonymy.

Var. *STRICTA* (Lindl. Syn. ed. 11, 227, as a species). *The Cornish Elm*. Is evidently not native. It may be seen at Cumnor, and is extensively planted at Lockinge by Lord Wantage, and also in Windsor Park.

Loudon says that at Bagshot Park this variety, at 70 years of age, reached a height of 70 feet.

Var. *SUBEROSA* (Moench, l. c., as a species), has the branches thickly covered with corky layers. In its extreme state it may be more frequently met with as a hedgerow shrub or small tree. ‘*Ulmus campestris* with very corky bark near Cumnor Hurst,’ *W. T. Dyer*, may be this. I have seen it at Cumnor, and it is plentiful about Besilsleigh, Cothill, Radley, Wittenham, Greenham, near Newbury, &c.

Loudon says that many of the trees at Windsor are *U. suberosa*, the Dutch cork-barked Elm.

Var. *GLABRA* (Sm. E. B. t. 2248, as a species).

There are some fine specimens of what I believe to be this variety near Besilsleigh ; it forms a large tree with more spreading branches than the Cornish Elm. Mr. J. G. Baker confirmed the name.

I have followed Syme in the descriptions of the varieties of the Wych Elm, but his account of the forms of the Common Elm is very imperfect.

I have never observed seedling elms in Berkshire ; such are of rare occurrence in Britain.

U. sativa occurs in all the bordering counties.

HUMULUS, Linn. Gen. n. 989 (*Lupulus*, Tournefort, Inst. t. 309).

H. Lupulus, Linn. Sp. Pl. 1028 (1753). *Hop*.

Lupus salictarius, Ger. Em. 885. *Humulus*, Dorsten.

Top. Bot. 367. Syme, E. B. viii. 132, t. 1284. Nyman, 658. Fl. Oxf. 263. Native. Septal. Damp hedges and thickets. Common and generally distributed through the lower parts of the county. Rare on the uplands. Perennial twining herb. May–August.

First record. Sunninghill, *Sir Joseph Banks*, in *Herb. Brit. Mus.* 1773.

H. lupulus, In hedges frequent, *Mavor's Agr. Berks*, 1809.

Humulus Lupulus, which was formerly cultivated in considerable quantities in Berkshire, is found in all the bordering counties.

****CANNABIS SATIVA**, Linn. Sp. Pl. 1027 (1753).

Hemp.

Comp. Cyb. Br. 559. Syme, E. B. viii. 131, t. 1280. Nyman, 658. Fl. Oxf. 263.

Alien. Casual. Waste ground about towns. Rare. A. August.

1. *Isis*. Near Wytham Mill.
 2. *Ock*. Grandpont. Didcot.
 3. *Pang*. Near Reading, on railway ballast by the G. W. and S. E. Railway.
 4. *Kennet*. At Newbury.
 5. *Loddon*. Twyford.
- Maidenhead. On rubbish in Windsor. Not permanently established, but only springing up from seed accidentally dropped, or from the cleanings of bird-cages.

URTICA, Linn. Gen. n. 935 (Tournefort, Inst. t. 308).

****U. PILULIFERA**, Linn. Sp. Pl. 983 (1753).

Roman Nettle.

Comp. Cyb. Br. 559. Syme, E. B. viii. 129, t. 1280. Nyman, 657.

Alien. A very doubtful plant of Berkshire. A. July-August.

'*Roman Nettle*, *U. pilulifera*, Dr. Noehden, rubbish heaps', *Mavor's Agr. Berks*, 1809, but as *U. urens* is not given, Dr. Mavor probably intended the common *U. urens*. The *U. pilulifera* of the Well. Coll. List is, the Rev. C. W. Penny tells me, also *U. urens*. I have been told that Mr. Butcher, of Reading, found *U. pilulifera* at Silchester. I have not seen the specimen, but the locality is one likely to produce it. The locality was probably in Hampshire, since the Amphitheatre is the only portion of the Roman Silchester which is in Berkshire. Mr. Tufnail has specimens from an old garden in Reading, and it is recorded for Hants and Surrey.

U. dioica, Linn. Sp. Pl. 984 (1753).

Stinging Nettle.

U. major, Bruns. *U. urens*, Ger. 570.

Top. Bot. 367. Syme, E. B. viii. 127, 1279. Nyman, 657. Fl. Oxf. 262.

Native. Viatical. Waste places, hedges, woods, &c. Abundant throughout the county. P. July-August.

First record. Sonning, Mr. S. Rudge in *Herb. Brit. Mus.* 1800. *U. dioica*, *Mavor's Agr. Berks*, 1809.

The Nettle is a very abundant plant in some of our low-lying shady woods. From its occurrence in many different situations it is subject to considerable variation. Among these may be mentioned—

Var. *ANGUSTIFOLIA*, Wimm. et Grab., Fl. Siles. 1827-9, Reichb. Ic. Fl. Germ. et Helv. 12, t. 654, f. 1324.

Kingston Bagpuze. Radley. Very luxuriant in shady thickets near Tidmarsh. Wargrave. Some of the plants from Tidmarsh appeared to be allied to the var. *atro-virens* of Gren. & Godr. Fl. Fr. iii. 108, but I have been unable to compare them with a type specimen.

Var. *HOLOSERICEA*, Fries, Nov. Fl. Suec. ed. 2, 281, to which a tall, robust, narrow-leaved, strongly hairy plant from Sulham probably belongs. Reichb. l. c.

Var. *MICROPHYLLA*, Hausmann, Fl. Tirol. ii. 771 (1852), a small-leaved dwarf plant from the stonework of river-banks near Oxford.

In fields near Tidmarsh a form occurred with leaves deeply and

irregularly cut, *f. crispa*, and it has also been seen near Headington Wick in Oxfordshire.

U. dioica occurs in all the English counties.

U. urens, Linn. Sp. Pl. 984 (1753). *Small Stinging Nettle*.

Top. Bot. 367. Syme, E. B. viii. 130, t. 138a. Nyman, 657. Fl. Oxf. 262.

Native. Viatical. Waste ground, manure-heaps, usually near villages.

Generally distributed, but much scarcer than *U. dioica*. A. June-September.

First record. *U. pilulifera* [sic], *Mavor's Agr. Berks*, 1809. *U. urens*.

Common under mud walls at Blewbury, Mr. J. Lousley in *Russell's Cat.* 1839.

I have seen it at 800 feet on the Ridgeway.

U. urens occurs in all the bordering counties. As is the case with *Chenopodium urticum*, *C. hybridum*, *C. murale*, *C. ficifolium*, *C. Vulvaria*, and *C. opulifolium*, *U. urens* has really the appearance of a colonist rather than that of a native plant in Berkshire.

PARIETARIA, Linn. Gen. n. 1020 (Tournefort, Inst. t. 289).

P. ramiflora, Moench, Meth. 327 (1794). *Wall Pellitory*.

P. officinalis, Linn. Sp. Pl. 1052 (1753), p. p. and i. 827. Sm. E. B. t. 879. *P. diffusa*, Mert. & Koch, Deutsch. Fl., not of Schur.

P. judaica, Index Kewensis and auct., not of Linn. *P. vulgaris*, Park. 437 (1640).

Top. Bot. 367. Syme, E. B. viii. 126, t. 1278. Nyman, 658. Fl. Oxf. 263.

Native. Rupestral. Old walls, hedge-banks, &c. Common in all the districts. P. June-September.

First record. Windsor Castle Walls, Dr. Dillenius, in *Herb. Oxf.* 1720.

P. officinalis, Dr. Noehden, *Mavor's Agr. Berks*, where it states that the leaves strewed in granaries destroy weevils.

Parietaria is found in all the bordering counties.

I cannot follow the synonymy of this and its allied species in the *Index Kewensis*. The true *P. officinalis*, Linn. = *P. erecta*, Mert. & Koch, l. c., does not occur in Britain. It may be known by its campanulate as contrasted with the tubular perianth.

MYRICACEAE, Dumort. Anal. Fam. 95 (1829).

MYRICA, Linn. Gen. n. 981.

M. Gale, Linn. Sp. Pl. 1024 (1753). *Sweet Gale*, *Bog Myrtle*, *Dutch Myrtle*.

Gale frutex odoratus . . . J. Bauhin, Hist. i. 224. *Gale*, Tournefort.

Top. Bot. 378. Syme, E. B. viii. 189, t. 1298. Nyman, 673. Fl. Oxf. 276.

Native. Uliginal. Damp heathy places and gullies. Very local.

Absent from the north of the county. Shrub. April-June.

First record. *Rhus sylvestris sive Myrtus Brabantica aut Anglica*. By Old

Windsor Parke corner, *Park. Theatr.* 1640. Windlesham. Moor near Bagshot, *Rev. Dr. Abbot in E. Bot.* t. 562, 1799. The above localities may be in Surrey.

4. Kennet. Golden Gully near Newbury, *Mr. Bicheno in Mavor's Agr. Berks*, 1809. Greenham Common, *Rupert Jones*. Still abundant and in fine condition there, growing in damp places where the clay has thrown out the moisture from the adjacent porous strata. Near the Decoy Pond at Aldermaston.
5. Loddon. Near Old Windsor Park corner, *Parkinson*. Bagshot, *Abbot*. (Possibly in Surrey.) Bagshot Heath near Blackwater, *Lightfoot MS.* Finchampstead Leas. Sandhurst, near the Military College. Ambarrow and Long Moor. Broadmoor Bottom. Near Ascot. Owls Moor. Windsor Park.

An androgynous form was noticed near Sandhurst.

I have an impression that I have seen it in Oare Hill Wood, but I did not see it on my last visit. At present the plant appears to be confined to the Bagshot Sands of the Kennet and Loddon districts. It is absent from Oxfordshire, is not recorded for E. Gloucestershire, and is on doubtful record for Bucks and Wilts.

CUPULIFERAE, Rich. Anal. d. Fr. 32 (1808).

BETULA, Linn. Gen. n. 933 (Tournefort, Inst. t. 350).

B. alba, Linn. Sp. Pl. 982 (1753). *Birch*.

B. verrucosa, Ehrh. Beitr. v. 161, and vi. 98. *Betula*, Gerard, 1295.

Top. Bot. 372. Syme, E. B. viii. 181, t. 1295. Nyman, 672. Fl. Oxf. 276. Native. Sylvestral. Woods and thickets on light soil. Local. Tree.

April 13-May.

First record. *B. alba*. Not unfrequent, as it grows in all kinds of soils, *Mavor's Agr. Berks*, 1809. 'I have often drank a beautiful wine in this neighbourhood, sparkling like champagne, which is made without sugar, water, or spirit, being merely the sap of the birch tree, boiled with honey, and fermented with a little yeast. The Birch grows abundantly about Bucklebury near here, so that on the advance of spring these trees are tapped, and a hollow tube inserted into the hole, through which the sparkling sap flows drop by drop into a vessel placed below,' *W. Hewett, East Isley, in Phyl.* 780, 1843.

1. Isis. Wytham. Rare in this district, and ? always planted.
2. Ock. Boar's Hill. Rare in this district, and probably only as a planted tree.
3. Pang. Bucklebury, *Hewett*. Fence Wood, *Rogers*. Sulham. Tidmarsh. De la Bere, *Tufnail*. Hermitage. Hawkridge Wood.
4. Kennet. Aldermaston. Mortimer. Snelsmore. Hampstead Marshall. Inkpen. Templeton. Frequent in the heathy parts.

5. Loddon. Bulmarsh, very fine specimens, *Tufnail*. Finchampstead. Windsor Park. Bracknell. Bagshot. Sandhurst. Bisham Wood. Frequent in the south-west.

The aggregate species constituting *B. alba*, Linn., is locally common in the county.

The foregoing records are for the restricted species, which is recorded for all the bordering counties except E. Gloucestershire.

Loudon says the Birch is supposed to have been once so plentiful in Berkshire as to have given the name to that county, *Arboretum*, iii. 1695.

- B. pubescens**, Ehrh. Beitr. iv. 160. (1789). *Birch*.

B. glutinosa, Wallr. Sched. Crit. 497 (1822).

Top. Bot. 372. Syme, E. B. viii. 186, t. 1296. Nyman, 672. Fl. Oxf. 276. Native. Sylvestral. Heathy woods, on light soil. Local. Tree. April-May.

First found by the author in 1880; recorded by the Rev. W. M. Rogers in *Journ. Bot.* 343, 1887.

2. Ock. Cothill.

3. Pang. Fence Wood, *W. M. Rogers*. Tidmarsh, *Tufnail*. Tilehurst. Bucklebury.

4. Kennet. Aldermaston. Hampstead Marshall. Mortimer. Greenham.

5. Loddon. Bulmarsh, *Tufnail*. Early. Bearwood. Bracknell. Ascot. Sunninghill. Finchampstead.

Two forms of this Birch are described, one with the fruiting and sterile branches glabrous = *B. carpatica*, Waldst. et Kit. in Willd. Sp. Pl. iv. 464; the other has the barren, and sometimes the fruiting branches pubescent; it is the var. *vestita*, Gren. et Godr. Fl. Fr. iii. 148.

B. pubescens is recorded for all the bordering counties except E. Gloucestershire and Bucks.

I am afraid I have neglected to observe in a thorough manner the distribution of the segregate species *B. alba* and *B. pubescens*; oftentimes, in thickets, &c., the trees do not produce catkins, and the period when the catkins are in proper condition for exact examination is rather limited.

ALNUS, Gaertn. Fruct. ii. 54, t. 90 (1791).

- A. glutinosa**, Gaertn. l. c. (1791), and Medic. Pfl. Anal. 393. *Alder*.

Betula Alnus, var. *a. glutinosa*, Linn. Sp. Pl. 983 (1753). *Alnus*, Gerard, 1294.

Top. Bot. 372. Syme, E. B. viii. 178, t. 1294. Nyman, 671. Fl. Oxf. 276. Native. Paludal. River-sides, damp woods. Not common in the north of the county, and scarce or absent from the central plateau, but frequent in the south, especially by the banks of the Loddon and Blackwater. Tree. January 28-April.

First record. *The Common Alder*. About Coleman's Moor, MS. in Ray's *Cat.* about 1680. Sunninghill, Sir Jos. Banks in *Herb. Brit. Mus.* 1773. Recorded in *Lyson's Magna Brit.* 1806, where it is stated that the prevailing wood of the county is Hazel with . . . Alder. *Betula alnus*, Mavor's *Agr. Berks*, 1809. *Alnus glutinosa* with *Dothidea alnea*, Grev., and *Erysiphe penicillata*, var. *alni*, Link (*Microsphaeria penicillata*), on it about Oxford, Baxt. *Phaen. Bot.* 193, 1837.

1. Isis. Wytham. Appleford.
2. Ock. Bagley Wood. Marcham. Cothill. Radley. Shippon.
3. Pang. Streatley, Pamplin. Tidmarsh. Pangbourn. Standford Dingley. Bradfield. Fence Wood.
4. Kennet. Greenham, Rupert Jones. Near Newbury, Mrs. Russell, *Newbury Cat.* 1839. Mortimer, Tufnail. Aldermaston. Burghfield. Kintbury. Bagnor. Inkpen. Templeton. Hungerford.
5. Loddon. Sunninghill, Sir J. Banks. Coleman's Moor, MS. in Ray. About Park Place, Stanton. Sandhurst. Ambarrow. Finchampstead. Blackwater. Swallowfield. Arborfield. Long Moor. Twyford. Bisham. Ruscombe. Windsor Park. Virginia Water. Frogmore. Wokingham.

That the Alder is a native of Berkshire is proved by the remains of it which was found in the peat beds at Newbury.

The Berkshire Alders have been rendered classical by the lines of Pope in his poem on Windsor Forest, in which he describes

'The Loddon slow with verdant Alders crowned.'

'The wood of the Alder, though not much valued in most places, is of considerable importance about Newbury. The Alder furnishes handles to rakes, prongs, mops, besoms, &c. Many hundreds of dozens of prongs and rakes are annually sent from the neighbourhood of Newbury into the west of England. At eight or at most nine years' growth, the Alder is available for that purpose.' Mavor, *Agr. Berks*, 1809.

Few pleasanter sights can be seen than that which is to be obtained by rowing up the quiet Loddon, where the Alders fringe the stream and in fact partly cover it, and contrast effectively with the Willow, while the banks are covered with a rich river-side vegetation.

Alnus is found in all the bordering counties.

CARPINUS, Linn. Gen. n. 952 (Tournefort, Inst. t. 348).

C. Betulus, Linn. Sp. Pl. 998 (1753). Hornbeam.

Betulus sive Carpinus, Ger. 1296.

Top. Bot. 371. Syme, E. B. viii. 176, t. 1293. Nyman, 663. Fl. Oxf. 268. Native. Hedges, coppices, possibly native on the Chalk in the south-east of the county, probably planted elsewhere. Tree. April-May. First record. *C. betulus*, Mavor's *Agr. Berks*, 1809.

1. Isis. Near Cumnor. Bablock Hythe. Appleton. Near Shrivenham. Wytham.

2. **Ock.** Near Uffington.
3. **Pang.** In Beech Wood, but not common, *Lousley in Russell's Cat.* Pangbourn. Hawkridge Wood. Bucklebury. Bradfield.
4. **Kennet.** Mortimer, *Tufnail.* Greenham. Newbury Wash. Southcote Lane. Weston. Between Inkpen and Hungerford.
5. **Loddon.** Heath Pool. Penny. Early, *Tufnail.* Park Place, *Stanton.* Arborfield, *Tayler.* Bearwood. Hurst. Ruscombe. Stubbing's Heath. Haines Hill. Sonning. Winkfield. Remenham. Wargrave. Bisham. Hall Place. Bowsey Hill, native. Ascot. Sandhurst. Bracknell. Bulmarsh. Bisham. Cookham. Windsor Park.

Some of our trees belong to the var. *provincialis*, Gay, in which the middle lobe of the cupule has a few large teeth on each side.

Carpinus Betulus is recorded for all the bordering counties except East Gloucestershire.

CORYLUS, Linn. Gen. n. 953 (Tournefort, Inst. t. 347).

C. Avellana, Linn. Sp. Pl. 998 (1753). *Hazel.*

Top. Bot. 371. Syme, E. B. viii. 170, t. 1292. Nyman, 663. Fl. Oxf. 268. Native. Sylvestral. Woods, coppices, hedges, &c. Abundant in the lanes and woods on the Chalk. Shrub or tree. January 20–April. First record. The prevailing wood of the county is *Hazel*, *Lyson's Magna Brit.* 1806. *Hazel* nuts are found in the Peat beds of Newbury, *Geology of Newbury*, 25, 1864. With *Erysiphe guttata*, Link, on it in Bagley Wood in 1826, *Baxter, Stirp. Crypt. Ox.* n. 96.

It grows at an elevation of 800 feet on Gibbet Hill, and very large trees are found in hedges, &c., at the base of the range.

A form with the leaves more deeply cut, *f. incisa*, has been seen near Upper Basildon and on the Lambourn woodlands.

Corylus is found in all the bordering counties.

QUERCUS, Linn. Gen. n. 949 (Tournefort, Inst. t. 394).

Q. Robur, Linn. Sp. Pl. 996 (1753). *Oak.*

Q. pedunculata, Ehrh. Arb. n. 77. Beitr. v. 161. *Q. vulgaris*, Gerard, 1156. *Robur*, Virgil.

Top. Bot. 368. Syme, E. B. viii. 145, t. 1288. Nyman, 660. Fl. Oxf. 266. Native. Woods, hedges, coppices. Common in the lowland woods. Tree. April–May.

Among the early references to the Oak as occurring in Berkshire may be quoted the following:—

There is an old tale goes that Herne the Hunter,
Sometime a keeper here in Windsor Forest,
Doth all the winter time, at still midnight,
Walk round about an oak.

The Merry Wives of Windsor, Shakespeare.

[For an interesting account of this tree see Jesse's *Gleanings in Natural History*, 2nd s. 117.]

Asterius menevensis deriveth the name of Berkshire from a certaine wood called Berroc, where grew good store of Box. Others derive the name from a naked or bare Oake, for so much the name Beroke itself importeth, into which the inhabitants in dangers and troublesome time of the commonwealth were wont in old time to resort, there to consult about their publike affairs. *Camden, Brit.* 1610.

Barkeshire affordeth abundance of trees of all kinds, though her Oakes in Windsor Forest come only under commendation. *Fuller's Worthies*, 81, 1672.

Chaucer is said to have planted three Oaks, that formerly grew in Donnington Park near Newbury. The largest, or King's Oak, had an erect trunk, fifty feet in height before any bough or knot appeared, a very unusual circumstance in the Oak; and when felled, cut five feet square at the but-end, all clear timber. The second, or Queen's Oak, gave a beam forty feet long, of excellent timber, straight as an arrow in growth and grain, without spot or blemish, four feet in diameter at the stub, and nearly three feet at the top; besides a fork of almost ten feet clear timber above the shaft, which was crowned with a shady tuft of boughs, amongst which were some branches on each side curved like rams' horns, as if they had been industriously bent by hand. This Oak was of a kind so excellent, cutting a grain clear as any clap-board, as appeared in the wainscot that was made thereof, that it is a thousand pities some seminary of the acorns had not been propagated to preserve the species. Chaucer's Oak was somewhat inferior to its companions, yet it was a very goodly tree. See *Evelyn's Sylva*. A country legend affirms that Chaucer wrote several of his poems under its branches.

I am told ye first [Fayrhok] was an old Oake which stood formerly at ye Lane End call'd Tutchin Lane next Bray-wood side, and was a Bound Tree. It has been down for about 50 years, and Sir Edm. Sawyer of Heywood planted an Elm Tree in place of it. *Hearne's Remarks and Collections*, 237, Apr. 28, 1706. Edited by C. E. Doble, i. 1885.

Here oaks their mossy limbs wide stretching meet
And form impervious thickets at our feet.

Faringdon Hill, Pye.

The prevailing wood of the county is Hazel, occasionally mixed with Oak. *Lyson's Magna Brit.* 1806.

Except in hedgerows, parks, and mixed with coppice wood, there are few native woods or plantations of this valuable tree. The finest oaks, in any number, are to be seen in the Forest, and on the south of the Kennet. In Hampstead Marshall Park, about seven years since, some were cut down which sold for £60 or £70 a-piece. . . . About Sparsholt there are some fine oaks. At Milton some oak plantations, and at Radley and in Bagley wood they flourish extremely. *Mavor, Agr. Berks*, 1809.

Mr. Cliffl exhibited to the Linnean Society on Feb. 21, 1837, a piece of an oak which had been blown down in Windsor Park during a late storm, and which, on being split open, was found to contain the following letters and figures cut in the wood, and the impressions reversed on the layers subsequently formed, 'W. B. 1670.'

In Windsor Forest there are some splendid examples: one of these, called the King Oak, is said to have been a favourite tree of William the Conqueror, who first made Windsor a Royal Forest. It stands near Cranbourn Enclosure, and although quite hollow is still healthy. So long ago as 1829, Professor Burnet lunched in it, and says that ten or twelve people might sit down comfortably to dinner in it. It was then twenty-six feet in circumference at three feet from the ground. It is figured on t. 29 of *Burgess' Eudodendron*, as is also Queen Anne's Oak, 'a tree of uncommon height and beauty,' on

t. 25, and a figure of Queen Charlotte's Oak will be found on p. 26. See *Amoen. Querc. fol. x.*

Among other celebrated Oaks of the county may be mentioned Pope's Oak in Binfield Wood. A very fine tree stands in Radley Park, near the well-known College.

Remains of the Oak are found in the Peat Beds of Newbury. The prevalence of the tree in the county is evidenced by the name Oakingham, now Wokingham.

Quercus Robur is found in all the bordering counties.

Var. *SESSILIFLORA* (Salisb. Prod. 392, as a species). *Durmast Oak.*

Q. sessilis, Erhh. Arb. n. 87, et Beitr. v. 161. *Q. foemina*, Miller, Gard.

Dict. ed. 8, 176 (1768). *Q. Robur*, var. *femina*.

Top. Bot. 369. Syme, E. B. viii. 157, t. 1289. Nyman, 660. Fl. Oxf. 267.

Denizen. Coppices, plantations. Rare. Tree. April-July.

First record. *Quercus latifolia mas, quae brevi pediculo est*, C. B. Pin. 419.

In Bagley Wood and divers other places about Oxford. Folia huic obscurius viridia et minus profunde sinuata quam vulgari, unde a vulgo circa Newberry oppidum *The Bay Oak*, id est *Lauro-quercus*, dicitur, Mr. J. Bobart in *Ray, Syn.* ed. 2, 286, 1696.

1. *Isis*. Wytham. 2. *Ock*. Bagley Wood, *Bobart*. 3. *Pang*. Sulham.

4. *Kennet*. About Newbury, *Bobart*. I never saw more than one tree (about Newbury), and that had been planted as a curiosity, *Bicheno in Mavor's Agr. Berks*, 1809. In a copse at Kintbury, *Gotobed in Bot. Guide*, 1805. Mortimer, *Tufnail*. Aldermaston.

This variety with sessile acorns has been recorded for Oxfordshire (as a planted tree), Surrey, and Hampshire.

CASTANEA, Miller, Gard. Dict. ed. 8 (1768). (*Tournefort, Inst. t. 584.*)

**C. SATIVA*, Miller, Gard. Dict. ed. 8, n. 1 (1768). *Sweet Chestnut.*

C. Castanea, Karst. *C. vesca*, Gaertn. Fruct. i. 181. *Fagus Castanea*, Linn. Sp. Pl. 997 (1753).

Comp. Cyb. Br. 560. Syme, E. B. viii. 159, t. 1290. Nyman, 660. Fl. Oxf. 266.

Denizen. Plantations, woods, parks, &c. Local. Tree. May.

First record. Near the Great House, Langley, Mr. J. Lousley in *Russell's Cat.* 1839.

1. *Isis*. Wytham woods.

2. *Ock*. Wittenham Wood.

3. *Pang*. Near the Great House, Langley, Hampstead Norris, *Lousley*. Sulham, *Tufnail*.

4. *Kennet*. In the lane betwixt Newbury and Hungerford, *Britt. Contr.* Mortimer, frequent as undergrowth, *Tufnail*. Aldermaston. Hampstead Marshall. Brimpton.

5. *Loddon*. Everywhere about Wellington Coll., *List*. Bisham Wood. Quarry Wood. Bowsey Hill. Sandhurst.

Castanea is recorded for all the bordering counties. It is a doubtful native of Britain. Its claims to being considered indigenous are discussed in a paper in *Philosophical Transactions*, vol. lix. 23, and in *Journ. Bot.* (1885) 254.

FAGUS, Linn. Gen. n. 951 (Tournefort, Inst. t. 351).

F. sylvatica, Linn. Sp. Pl. 998 (1753). *Beech*.

Top. Bot. 370. Syme, E. B. viii. 164, t. 1291. Nyman, 660. Fl. Oxf. 265. Native. Sylvestral. Woods on the chalk plateau. Plantations, hedges, parks, and elsewhere. Tree. March–April. It ascends to nearly 900 feet.

First record. *Fagus*, the Beech, in sylvis et montibus, Ger. 1444. On the first heath behind Redding, in the way to Oxford, *Merrett*, *Pinax*, 38, 1666. By the banks of the Thames are some entire woods of Beech, *Lyson's Magna Brit.* 1806. Beech tree forms many large woods in the county. Delights in a calcareous soil. No verdure will grow under its shade, *Mavor's Agr. Berks*.

The Beech is found in all the districts, but it may be native only in the Pang, Kennet, and Loddon. The delightful woods of Hampstead Norris, Unwell, Basildon, Streatley, Sulham, Riever, Wargrave, Sonning, Cookham, Park Place, and the Quarry woods near Marlow, are chiefly composed of Beech.

Under the shelter of the Beech, with the thick coating of almost imperishable leaves, few plants occur; these, however, include *Neottia*, *Monotropa*, *Cephalanthera*, *Epipactis*, *Scilla*; and when the wood becomes mixed with other trees, *Ajuga*, *Lamium Galeobdolon*, *Milium*, *Elymus curopaus*, and *Lysimachia nemorum* are among the first plants to put in an appearance.

Fagus is found in all the bordering counties.

SALICACEAE, Lindl. Nat. Syst. ed. 2, 186 (1836).

SALIX, Linn. Gen. n. 976 (Tournefort, Inst. t. 364).

[**S. pentandra**, Linn. Sp. Pl. 1016 (1753). *Bay-leaved Willow*, *Sweet Willow*. Top. Bot. 374. Syme, E. B. viii. 202, t. 1303. Nyman, 664. Fl. Oxf. 270.

Recorded by Dr. Noehden in *Mavor's Agr. Berks*, 1809, but almost certainly an error. If correctly named, it could only have occurred as a planted shrub, as it is a native only of the northern counties.

S. pentandra is planted by the Cherwell near Oxford, and is also recorded as an introduced plant from Surrey, Hants, and Wilts.]

S. triandra, Linn. Sp. Pl. 1016, n. 2 (1753). *French Willow*.

Top. Bot. 375. Syme, E. B. viii. 215, t. 1313. Nyman, 664. Fl. Oxf. 271. Native. Paludal. Banks of streams, &c. Locally common. Small tree or shrub. April–May.

First record. *S. triandra*. Smooth Willow, Dr. Noehden, *Mavor's Agr. Berks*, 1809.

The aggregate species *S. triandra* is rather common by the Thames and Loddon.

S. TRIANDRA, Linn. type.

1. **Isis**. Near Appleton. Near Lechlade. 2. **Ock**. Kennington.

Radley. Steventon. 3. Pang. Near Pangbourn. 4.
 Kennet. Aldermaston. 5. Loddon. Near Jouldern's
 Ford. Near Hurley.

Var. *HOFFMANIANA* (Sm. E. B. t. 2620, and Engl. Fl. iv. 168, as a species). Curt. Fl. Lond. vi. t. 72. Fl. Oxf. 272. Syme, E. B. viii. 215, t. 1314.

This appears to be the common *triandra* form in the county.

1. Isis. Bablock Hythe. Wytham. Coleshill. Radcot, &c.
2. Ock. Kennington. Cothill. Marcham. Hagborne. Challow. Bayworth. Frilford. Radley. Wittenham. Abingdon.
3. Pang. Moulsoford. Pangbourn. Purley. Tilehurst. 4.
- Kennet. Aldermaston. Newbury. Padworth. Sandleford. Benham. Theale. 5. Loddon. Bray. Bisham. Sandford. Sonning. Twyford. Wargrave. Cookham. Ruscombe.

S. Hoffmanniana, Sm. appears to be the var. *concolor* of Andersson, Mon. Salic. 1867, and is, I think, worthy of specific rank. It forms smaller and more compact bushes than the type, and the leaves are also different, being yellow or green, and of a thinner texture. Syme makes a third variety, *S. amygdalina*, Linn. Sp. Pl. 1016, Syme, E. B. l. c., t. 1315, which he says differs from the two preceding forms by the young twigs being deeply furrowed. It has larger stipules than the type, and the leaves are glaucous beneath. I have seen it at South Hinksey, Shippon, Wantage, Pangbourn, Wargrave, &c. It is probably the var. *discolor*, Andersson, l. c. Buchanan White says that the Linnean *S. amygdalina*, if not altogether dubious, is a synonym of *S. triandra*. Andersson was of opinion that his *discolor* in Western Europe was a more truly wild form than the var. *concolor*. It is less frequent with us. The var. *Hoffmanniana* (*concolor*) is extensively planted in our area.

×*S. UNDULATA*, Ehrh. Beltr. vi. 101, not of Forbes or Schleicher.

S. lanceolata, Smith, E. B. t. 1436. *S. triandra* × *alba*, E. F. Linton. *S. triandra* × *viminalis*, F. B. White. Syme, E. B. viii. 213, t. 1312.

To this I refer a willow which I have seen at Kennington, near Radley, and at Wytham. To me it appears to be a hybrid of *S. alba* and *triandra*. Dr. F. B. White was rather inclined to refer the Kennington plant to *S. Treviranii*, Spreng, Pugill. i. 61, than to *S. lanceolata*, Sm., which is the commoner hybrid, but I fail to recognize the influence of *S. viminalis* in our plants. The Rev. E. F. Linton has named one of my specimens from Wytham *S. lanceolata*.

The aggregate species *S. triandra* is recorded for all the bordering counties except E. Gloucestershire.

S. fragilis, Linn. Sp. Pl. 1017 (1753). *Bedford Willow*.

S. Russelliana, Sm. Fl. Br. 1045. *S. fragilis*, var. *Russelliana*. Top. Bot. 374. Syme, E. B. viii. t. 1308. Nyman, 664. Fl. Oxf. 270.

Native. Paludal. River-sides, &c. Not uncommon. Tree. April-May.

First certain record. The author in this *Flora*.

1. *Isis*. Wytham. Buckland. Buscot. Bourton, &c.
2. *Ock*. Hinksey. Kennington. Abingdon. Cholsey, &c.
3. *Pang*. Tilehurst. Pangbourn. Streatley. Bradfield, &c.
4. *Kennet*. Aldermaston. Padworth. Hungerford. Newbury.
5. *Loddon*. Wargrave. Sonning. Cookham. Bray. Loddon. Ruscombe. Blackwater. Bisham, &c.

Two varieties of *S. fragilis* are known to occur in England; in *var. a*, Dr. F. B. White says the male catkins are rather dense-flowered, with the stamens conspicuously longer than the scales. In *var. b*, which is the true *S. Russelliana* of Smith, the catkins are lax-flowered, and the stamens are scarcely longer than the scales; the ovary in *var. a* is much wider at the base than in *var. b*, being ovate-lanceolate, that of *var. b* being lanceolate-subulate. Our Berkshire plant belongs to the second variety, that is, to true *S. Russelliana*, which is the *S. fragilis*, *var. britannica*, F. B. White.

True *S. fragilis* has been recorded for Surrey, Oxfordshire, and W. Gloucestershire. I have seen it in Bucks, near Marlow, &c.

Under *S. fragilis* the Rev. E. F. Linton, in the Lond. Cat. ed. 9, places as a probable hybrid with *triandra* *S. DECIPiens*, Hoffm. Hist. Salic. ii. 9, t. 31 (1791), *S. fragilis*, *var. decipiens*, Syme, E. B. viii. 206, t. 1307. Fl. Oxf. 271. Dr. F. B. White, in his excellent *Revision of the British Willows* in the Journ. Linn. Soc. xxvii. (1890) 333-457, considers it to be *triandra* \times *fragilis*.

I have seen it near Wytham, Abingdon, &c.

More recently Messrs. Linton have stated that they are not convinced that *S. decipiens* is *S. fragilis* \times *triandra*.

S. viridis, Fries, Nov. ed. 2, 283 (1828). *Crack Willow*.

- S. fragilis*, *var. Russelliana*, Koch, Syn. Fl. Germ. ed. 2, 741. *S. fragilis*, Sm. not of Linn. *S. alba*, *var. viridis*, Wahl. Fl. Suec. ii. 635. *S. alba* \times *fragilis*, E. F. Linton. *S. fragilis-alba*, Wimmer, Sal. Eur. 133. Sm. E. B. t. 1807. F. B. White, Journ. Linn. Soc. l.c. 364.

First recorded by the author in 1890.

Native. Paludal. River and brook-sides. Tree. March-May.

1. *Isis*. Wytham. Appleton. Faringdon. Near Lechlade.
2. *Ock*. Wootton. Radley. Marcham. Abingdon.
3. *Pang*. Moulsoford. Pangbourn.
4. *Kennet*. Theale. Southcote. Kintbury. Newbury. Aldermaston.
5. *Loddon*. Twyford. Ruscombe. Bray.

Probably to this belongs in part the *S. fragilis* recorded as 'common by brook-sides at Blewbury, Upton, and in all the villages of the Vales of Berks, and in Mr. Lousley's Orchard, Hampstead Norris, &c.,' J. Lousley in *Russell's Cat.* 1839.

S. viridis is made up of a series of intermediate forms of *S. alba* and *S. fragilis*, which almost certainly are natural hybrids. In many cases the plants approach one parent in one particular, and the other parent in another. Buchanan White states that the branches, or at least the main ones, of *S. alba* make with the stem an angle of 35°, in *S. fragilis* it is 90°, in normal intermediate *S. viridis* it is about 60°.

The capsules of *S. fragilis* measure about 7 mm. in length, in *S. alba* they are 3 mm., and in *S. viridis* about 5 mm. Compared with *S. fragilis* typical, the leaves of *S. viridis* are of a darker green, more finely serrated on the margin, and less oblique towards the apex; the capsules are smaller, more or less obtuse at the apex, and with a shorter pedicel, not more than twice the length of the nectary. In *S. fragilis* the capsule is lanceolate-subulate or ovate-lanceolate, attenuate into the style, and the pedicel is two to three times as long as the nectary. From *S. alba* the larger and more glabrous leaves, and larger and more distinctly pedicelled and distinctly styled capsules, offer distinguishing characters.

One of the forms which I sent to my lamented friend, Dr. F. B. White, was a female plant from Oxfordshire, and I have the same from Berkshire, near Sandford. It had long slender catkins and capsules resembling those of *S. alba*, but shortly pedicelled. In this *S. alba* is the predominating partner.

For the sake of convenience I have kept a distinct place for *S. viridis*, but it is quite possible that the suggested origin is correct.

S. viridis has been correctly recorded for Surrey, Oxfordshire, and I have seen it in Bucks, near Cottisford.

S. alba, Linn. Sp. Pl. 1021 (1753).

White Willow.

S. vulgaris alba arborescens, C. B. Pin. 473. *S. fragilis*, Linn. Herb. Top. Bot. 375. Syme, E. B. viii. 210, t. 1309. Nyman, 664. Fl. Oxf. 271. Native. Paludal. Sides of rivers and pools, damp hedges, &c.

Common. A tree attaining from 50-60 feet. April-May.

First record. *S. vitellina*, Yellow Willow, Dr. Noehden. The shoots used by Crate and Basket makers. Wood white and very tough, Mavor's Agr. Berks, 1809.

S. alba is a common willow in all the districts and is often pollarded. Some handsome trees of it are to be seen by the Thames.

Mr. G. D. Leslie painted his picture of 'Willow, willow' from the banks of the Loddon.

Var. COERULEA (Sm. E. B. t. 2431, as a species). Huntingdon Willow.

A large number of our plants of *S. alba* belong to this form, which has more glabrous leaves.

Var. VITELLINA (Linn. Sp. Pl. 1016, as a species). Yellow Willow. Syme, E. B. t. 1311.

Chiefly distinguished by the bright golden yellow twigs. It is frequently cultivated in osier-beds, but besides the difference in the colour of the bark it has much more slender catkins, with more scattered flowers, and very long narrow scales. The leaves are smaller and are less pubescent and of a yellower green tint.

I have seen var. *vitellina* near Kennington, near Padworth, near Hermitage, by the Loddon, and by the Thames in several places, and it is recorded by Mr. J. Lousley from Blewbury in *Russell's Cat.* 1839.

S. alba is found in all the bordering counties.

S. purpurea, Linn. Sp. Pl. 1017 (1753). *Purple Willow.*

Top. Bot. 375. Syme, E. B. viii. 217, t. 1316. Nyman, 665. Fl. Oxf. 272. Native. Paludal. The aggregate plant is locally common by our stream-sides, especially on the Upper Thames from Appleton to Godstow, by the Kennet, and by the Thames between Henley and Marlow. Small tree. March-April.

First record. Mr. Winch, in *New Bot. Guide*, 1835, and *Sm. Engl. Fl.* 1828.

1. Isis. Near Appleton. Bablock Hythe. Wytham. Kelmscott. Buscot.
2. Ock. By the Thames at Oxford, *Winch MSS.* 1832. Kennington. Radley. Abingdon. Marcham. Wittenham. Frilford.
3. Pang. Tilehurst. Moulsoford. Streatley. Pangbourn.
4. Kennet. Hungerford. Kintbury. Southcote. Theale. Benham.
5. Loddon. Windsor, *Bolton King*. Bray. Hurley. Cookham. Wargrave. Wokingham. By the Loddon, near Sandford Mill. Near Loddon Bridge. Barkham, &c.

Forma *Lambertiana* (Sm. Fl. Brit. iii. 1041, as a species). *The Boyton Willow*. Syme, E. B. t. 1318. This form, which has the leaves much broader, less tapered at the base, and more glaucous branches, was recorded from Henley-upon-Thames in *Sm. Engl. Fl.* iv. 190, 1828. It still occurs in the vicinity. I have seen it in the Kennet Valley, near Kintbury, Aldermaston, Burghfield, Midgham, Theale, &c., on the Thames near Hurley and Bisham, and near Whistley Mill.

Forma *Woollgariana* (Borrer, in E. B. Suppl. t. 2651, as a species), Syme, E. B. t. 1317. Occurs by the Kennet between Thatcham and Newbury, and near Hurley. It has leaves conspicuously broader above the middle.

Forma *ramulosa* (Borrer). I have seen it on the Loddon. It is the *S. Helix* of Andersson.

S. SORDIDA, Kerner, in Verh. Zool.-Bot. Ges. Wien. x. (1860) 257 = *S. purpurea* × *cinerea* = *S. cinerea-purpurea*, Wimmer. To this hybrid I refer some plants which I saw by the Thames between Park Place and Hurley. That they are forms of *S. purpurea* is undoubted, while the *cinerea* parentage is suggested by the shape and colour of the leaves, &c. In the male plants there is less difficulty in distinguishing this hybrid, since the filaments of the stamens are more or less connate. In *S. cinerea* they are quite free.

S. PURPUREA × *TRIANDRA*. Some plants which occur near Aston Ferry, which I have only seen in leaf, suggest the above parentage.

As the Rev. E. S. Marshall remarks, the leaves and bark show strong signs of *triandra*. The facies is obviously that of *purpurea*.

S. purpurea occurs in all the bordering counties.

S. rubra, Huds. Fl. Angl. 364 (1762).

S. purpurea × *viminialis*. *S. Helix*, Linn. Sp. Pl. 1017 (1753)?

Top. Bot. 375. Syme, E. B. viii. 221, t. 1320. Nyman, 665. Fl. Oxf. 273. Native. Paludal. River-sides and wet places. Rare. Shrub. April-May.

First record. *S. minima fragilis*, fol. longissimis, utrinque viridibus non serratis, Ray, Syn. 238, 1690.

1. Isis. Near Eynsham.

2. Ock. Near Besilsleigh.

3. Pang. Pangbourn, Hon. J. L. Warren. Tilehurst.

4. Kennet. Padworth. Burghfield.

5. Loddon. In the Osier Holts between Maidenhead and Windsor, Ray, Syn. l. c. Wargrave, *S. Helix*, Melvill. Loddon side. Near Wokingham.

I have only seen the *S. rubra*, var. *purpureoides*, Gren. et Godr. Fl. Fr. iii. 129, in Berkshire; this variety is made up of hybrid plants in which *S. purpurea* is the predominating partner, the leaves being broader and less hairy than in the var. *VIMINALOIDES*, Gren. et Godr. l. c., in which *S. viminialis* is more evident; that is, in *viminaloides* the leaves are narrower and longer and covered underneath with a greater amount of pubescence. The form *Forbyana* (Sm. Fl. Brit. iii. 1041, as a species), Syme, t. 1321, I have seen near Wytham.

In this case, as in *S. viridis*, I have kept a distinct heading for a hybrid plant.

S. rubra is recorded for all the bordering counties except E. Gloucestershire.

S. viminialis, Linn. Sp. Pl. 1021 (1753). *Osier*.

Top. Bot. 375. Syme, E. B. viii. 233, t. 1322. Nyman, 666. Fl. Oxf. 273. Native. Paludal. Pond-sides, marshes, meadows, osier-holts. Common and generally distributed. Shrub or small tree. April-May.

First record. *S. viminialis*, Osier. There are three varieties, the Spanish, the French (? *S. triandra*), and the new kind, *Mavor's Agr. Berks*, 1809. Plentiful at Blewbury, &c., Mr. J. Lousley in *Russell's Newbury Cat.* 1839.

The common osier is too frequently planted in Berkshire to require localities; occasionally it is seen in apparently native situations, and is much less subject to variation than the preceding species.

VAR. *STIPULARIS* (Sm. E. B. t. 1214 and Fl. Brit. iii. 1079, as a species), Syme, E. B. viii. 225, t. 1323. Nyman, 666. Fl. Oxf. 273.

I have only seen this plant, which has broader leaves and large

stipules, in the Kennet Valley near Newbury, and in the Loddon district near Hurst. It is not improbably the offspring of three species. The *viminialis* parentage is pronounced, but the broader leaves and the pubescence show that *cinerea* or *caprea* may have been also the progenitors.

S. viminalis occurs in all the bordering counties.

S. Smithiana, Willd. Enum. Hort. Berol. ii. 1008 (1809).

S. mollissima, Sm. Fl. Brit. iii. 1070, not of Ehrhart. *S. cinerea-viminalis*, Wimm. Sal. Eur. 181.

Top. Bot. 375. Syme, E. B. viii. 227, t. 1324. Nyman, 666. Fl. Oxf. 273. Native. Septal. Sides of ponds and streams, hedges, &c. Rather common. Shrub or small tree. April.

First record. *S. caprea acuto longoque folio*. Found frequently about Oxford, Sherard, in Ray, Syn. 238, 1690. Definitely recorded by the author in *Flora of Oxfordshire*, 273, 1886.

1. Isis. Cumnor. Wytham Park.
2. Ock. Uffington. Abingdon. Steventon. Boar's Hill. Wootton. South Hinksey. Frilford. Wantage. Near Sunningwell. Radley.
3. Pang. Pangbourn. Standford Dingley. Bradfield. Tilehurst.
4. Kennet. Theale.
5. Loddon. Knowl Hill. Wargrave. Ruscombe.

Var. *SERICANS*, F. B. White, l. c. 417. *S. sericans*, Tausch, in Verh. Zool.-Bot. Ges. Wien. x. (1860) 214. *S. viminalis* × *caprea*. *S. caprea* × *viminialis*, Wimm. Sal. Eur. 178, *forma latifolia*, Anderss. I have seen it near Radley, Wantage, &c. Some of the above records belong to it.

Var. *VELUTINA*, F. B. White, l. c. 418. *S. velutina*, Schrad. ex Koch, Syn. Fl. Germ. 650 (1837). *S. viminalis* × *caprea*. *S. viminalis* × *cinerea*. ? *S. rugosa*, Leefe.

This is probably the plant of Sherard alluded to above.

1. Isis. Near Wytham.
2. Ock. South Hinksey. Kennington. Near Abingdon.

S. AURITA × *VIMINALIS*, Wimm. Sal. Eur. *S. fruticosa*, Doell, Fl. Bad. 515. *S. viminalis* × *aurita*, E. F. Linton, Lond. Cat. ed. 9.

To this should be referred a plant I gathered near Radley; it occurs also near Didcot and Ruscombe.

Var. *FERRUGINEA*, F. B. White, l. c. 418. *S. ferruginea*, G. Anderson ex Forbes Salict. Woburn, 255. ? *S. cinerea* × *viminialis*, Wimmer, Sal. Eur. Syme, E. B. viii. 228, t. 1325. Fl. Oxf. 274.

1. Isis. Near Appleton. Wytham.
2. Ock. South Hinksey. Marcham. Near Kennington. Wantage.
4. Kennet. By the Thames near Reading, G. Anderson, E. B. Suppl. t. 2665. Theale.
5. Loddon. By the Thames, near Windsor, G. Anderson. Near Hurst. Near Bray.

Var. *ACUMINATA*, F. B. White, l. c. *S. acuminata*, Sm. E. B. t. 1434, and Fl. Brit. iii. 1068. Syme, E. B. viii. 229, t. 1326.

I have seen a plant which probably comes under this form near Wantage.

I have here ventured to group under *S. Smithiana* various hybrids of *S. viminalis* with *caprea*, *cinerea*, and *aurita*, but the synonymy of the various forms will give the names of their supposed parents. It is quite likely that some of the plants placed under *Smithiana* are ternary hybrids.

S. Smithiana, which is kept as a distinct species in *Index Kewensis*, is recorded for all the bordering counties except Wilts, but I have seen it in that county in the Vale of Pewsey.

S. cinerea, Linn. Sp. Pl. 1021 (1753). *Grey Willow*.

Top. Bot. 375. Syme, E. B. viii. 230, t. 1327. Nyman, 667. Fl. Oxf. 274. Native. Sylvestral. Woods, hedges, damp bushy places, stream-sides, occasionally on walls. Common and generally distributed. Shrub or small tree. April.

First record. *S. cinerea*, Dr. Noehden, *Mavor's Agr. Berks*, 1809. This and the var. *aquatica* are noticed by Mr. H. C. Watson in *Brit. Contr.* 1871.

S. cinerea is very variable and hybridizes with *aurita*, *caprea*, *purpurea*, *viminalis*, &c.

Var. *AQUATICA* (Sm. E. B. t. 1437 and Fl. Brit. iii. 1065, as a species), Fl. Oxf. 274, Syme, E. B. viii. 231, t. 1328, which is for the greater part a hybrid of *aurita* × *cinerea*.

1. Isis. Cumnor. Appleford.
2. Ock. Bagley. Radley. Tubney. Hagborne.
3. Pang. Pangbourn.
4. Kennet. Thatcham. Aldermaston.
5. Loddon. Near Wokingham, Watson. Near Twyford. Swallowfield. Bray. Ruscombe.

Plants which agreed with named forms of *S. oleifolia*, Sm. E. B. t. 1402, and Fl. Brit. 1065, Syme, E. B. viii. 231, t. 1329, have been seen in Bagley, Burghfield, &c.

A form with narrow leaves was seen in woods at Tilcombe Green, near Kintbury.

S. cinerea is found in all the bordering counties.

S. aurita, Linn. Sp. Pl. 1019 (1753). *Round-leaved Willow*.

Top. Bot. 376. Syme, E. B. viii. 232, t. 1330. Nyman, 667. Fl. Oxf. 275. Native. Sylvestral. Hedges, thickets, damp woods, and heaths. Not uncommon. Small shrub. April-May.

First record. *S. aurita*, Dr. Noehden, *Mavor's Agr. Berks*, 1809.

1. Isis. Wytham. Pusey. Appleton.
2. Ock. Bagley Wood. Pusey. Tubney. Besilsleigh. Boar's Hill. Steventon.
3. Pang. Ashampstead. Hermitage. Fence Wood. Cold Ash.
4. Kennet. Aldermaston. Mortimer. Greenham. Snelsmore. Bagnor.

5. Loddon. Windsor Park. Bagshot. Finchampstead. Long Moor. Easthampstead. Wokingham. Swallowfield. Ascot. Sunningwell. Sandhurst. Risely. Stubbing's Heath. Ruscombe.

S. AURITA × *CINEREA*, Wimm. *S. lutescens*, Kerner, l. c. 253. *S. multinervis*, Doell, Fl. Bad. 516.

I have seen this on Boar's Hill Range, at Ashampstead, Bagley Wood, Tilehurst, Greenham, Ruscombe, Finchampstead, Loddon Bridge, and near Stubbing's Heath. It is probably not infrequent.

S. AURITA × *CAPREA*. The hybrid of *S. caprea* with *S. aurita*, named *S. capreola* by J. Kerner, I have found at Ruscombe, Bagley, Farnborough, Greenham, and by the Loddon.

S. aurita is found in all the bordering counties.

S. caprea, Linn. Sp. Pl. 1020 (1753). *Sallow*; the catkins are called *Palms*.

S. Caprea rotundifolia, Gerard, 1203.

Top. Bot. 376. Syme, E. B. viii. 233, t. 1331. Nyman, 667. Fl. Oxf. 274. Native. Sylvestral. Woods, hedges, river-sides, &c. Common and generally distributed. Small tree or shrub. The earliest species to flower. January-April.

First record. *S. caprea*, with *Xyloma Salicinum*, Pers. on the upper sides of the leaves in Bagley Wood, Baxter, Stirp. Crypt. Ox. n. 35, 1825.

There is an acknowledged hybrid of this species with *S. cinerea* to which the name *S. Reichardtii*, Kerner, l. c. 249, has been given; I think I have seen it near Kennington, but as the differences between *S. cinerea* and *S. caprea* are not well marked on account of their close affinity, my identification of it is open to doubt.

S. caprea is a common woodland species; its bright yellow catkins of the male plant are a pleasing feature in our bare woods in the spring. Later in the season, the satin shining female catkins are also very charming. Mr. G. D. Leslie considered it to be the most ornamental of the Thames willows.

S. caprea is found in all the bordering counties.

S. repens, Linn. Sp. Pl. 1020 (1753). *Heath Willow*.

Top. Bot. 377. Syme, E. B. viii. 246, tt. 1356-1362. Nyman, 668. Fl. Oxf. 275.

Native. Ericetal. Heaths. Locally common. Absent from the Isis and the Ock districts. Common in the Kennet and the western portion of the Loddon district. Small creeping shrub. March-April.

First record. *S. repens*, Mr. Bicheno, *Mavor's Agr. Berks*, 1809.

3. Pang. Cold Ash Common. Oare Common. Bucklebury Common.

4. Kennet. Mortimer, *Tufnail*. Greenham Common, *Bicheno*.

Burghfield. Aldermaston. Ufton. Crookham Heath. Newbury Wash. Snelsmore. Inkpen.

5. Loddon. Heath Pool, Penny. Sunninghill, var. *fusca*, J. G. Baker. Bearwood. Bagshot Heath. Early. Broadmoor. Risely. Jouldern's Ford. Finchampstead. Ascot. Sandhurst. Easthampstead Plain. Whitemoor Bog. Bracknell. Sunningdale. Ambarrow. Haines Hill.

On our Berkshire heaths I have found forms of *S. repens* which agreed with named specimens of *S. adscendens*, Sm. E. B. t. 1962; *S. parvifolia*, Sm. t. 1961; *S. argentea*, Sm. Fl. Brit. 1059; and *S. fusca*, Linn. Sp. Pl. 1020; and Mr. Britten reports *prostrata* from Greenham Common. Experts now consider these species to be forms only.

S. repens is recorded for all the bordering counties except E. Gloucestershire, but it is very rare in Oxfordshire, in which county I have not as yet seen it.

- × *S. ambigua*, Ehrh. Beitr. vi. 103 (1791). *S. repens-aurita*, Wimm. Sal. Eur. 233.
Top. Bot. 376. Syme, E. B. viii. 244, t. 1355. Fl. Oxf. 275. Comp. Cyb. Br. 570.

This hybrid willow is found occasionally in the Kennet and Loddon districts. At Greenham a form was found which was nearer *S. repens*. At Bearwood an intermediate plant was noticed, and at Finchampstead, where a hybrid much nearer *S. aurita* also occurred. Near Bracknell a form nearer *S. repens* was seen.

Mr. H. C. Watson in *Top. Bot.* says he believed he had seen *S. ambigua* on the heaths of Berkshire.

- [*S. NIGRICANS*, Sm. in Linn. Soc. Trans. vi. (1802) 120. Syme, E. B. viii. 241, t. 1347. See Fl. Oxf. 275.]

Planted by the Cherwell and Christ Church Meadow, Oxford.]

Other non-indigenous species of Willows are planted about Oxford, and the Weeping Willow, *S. Babylonica*, Linn., is also to be seen in parks, ornamental grounds, &c.

POPULUS, Linn. Gen. n. 996 (Tournefort, Inst. t. 365).

- **P. ALBA*, Linn. Sp. Pl. 1034 (1753), and of Gerard. *White Poplar*.

Comp. Cyb. Br. 312. Syme, E. B. viii. 192, t. 1299. Nyman, 663. Fl. Oxf. 268. Denizen. Sylvstral. Woods, hedges, fields, &c. Not very common, but occurring as a planted tree in all the districts, preferring low moist situations. March-April.

First record. *P. alba*, *Mavor's Agr. Berks*, 1809.

1. *Isis*. Buckland. Buscot. Cumnor. Wytham.
2. *Ock*. Boar's Hill. Uffington. Abingdon.
3. *Pang*. Sulham. Standford Dingley.
4. *Kennet*. Mortimer, *Tufnail*. *Newbury Cat*. 1839. Aldermaston.
5. *Loddon*. Park Place, by the Lake, *Stanton*. Ruscombe. Windsor. Sandhurst.

P. alba occurs as a planted tree in all the bordering counties.

**P. CANESCENS*, Sm. FL. Brit. iii. 1080 (1804), E. B. t. 1619. *Grey Poplar*.

P. alba, Mill. Gard. Dict. ed. 8 (1768), not of Linn. *P. alba* × *tremula*.

Comp. Cyb. Br. 313. Syme, E. B. viii. 194, t. 1300. Nyman, 663. FL. Oxf. 269. Denizen. Septal. Sylvestral. Wet woods, hedges, &c. Not uncommon, and scattered through all the districts. Tree. March–April.

First recorded by Mr. J. Lonsley in *Russell's Cat.* 1839.

1. *Isis*. Eynsham. Cumnor. Wytham. Buckland. Buscot. Shrivenham.

2. *Ock*. Very common in Blewbury and most of the villages in the Vale, *Lousley*. Marcham. Didcot. Boar's Hill. Abingdon. Appleford. Near Wittenham.

3. *Pang*. Hampstead Norris, *Lousley*. Tidmarsh.

4. *Kennet*. Weston, *Osmond*. Aldermaston. Greenham. Padworth.

5. *Loddon*. Ruscombe. Near Twyford. Wargrave. Near Bousey Mill.

P. canescens occurs as a planted tree in all the bordering counties.

P. tremula, Linn. Sp. Pl. 1034 (1753), and of C. B. Pin. 429. *Aspen*.

P. Lybica, Gerard.

Top. Bot. 373. Syme, E. B. viii. 196, t. 1301. Nyman, 664. FL. Oxf. 269.

Native. Sylvestral. Woods, hedges, heaths, &c. Rare in the north, but not unfrequent in the south-west of the county. Tree. March–April.

First record. *P. tremula*, *Mavor's Agr. Berks*, 1809.

1. *Isis*. Wytham.

2. *Ock*. Dry Sandford. Marcham. Steventon. Tubney.

3. *Pang*. Hermitage. Westbrook, *W. M. Rogers*. Petty's Copse. Tidmarsh. Sulham, *Tufnail*. Streatley. Tilehurst. Fence Wood. Bucklebury.

4. *Kennet*. Wickham. Shefford. Inkpen. Aldermaston. Hampstead Marshall. Mortimer.

5. *Loddon*. Wellington. Sandhurst. Ambarrow. Finchampstead. Bearwood. Early. Wokingham. Bracknell. Windsor Park. Ashley Hill.

Two varieties of this tree are recognized, namely, *var. GLABRA*, Syme, l. c., with the young leaves sub-glabrous or glabrous, which occurs at Marcham, Tilcombe Green, Finchampstead, Sandhurst, &c.; and the second, our commoner form, and one which is very often planted, is the *var. VILLOSA* (Lang in Syll. Soc. Ratisb. i. 185, as a species), as at Bisham Wood, &c., in which the young leaves are densely silky.

P. tremula is recorded for all the bordering counties.

**P. NIGRA*, Linn. Sp. Pl. 1034 (1753), and of Gerard. *Black Poplar*.

Comp. Cyb. Br. 561. Syme, E. B. viii. 198, t. 1302. Nyman, 664.

Baxt. t. 506. FL. Oxf. 269.

Denizen. Sylvestral. Hedges, plantations, &c. Not uncommon as a planted tree; in all our river valleys, and a conspicuous feature in the scenery of the Thames and Kennet valleys. It attains to a considerable size. March.

First record. *P. nigra*, about Oxford, *Baxter, Phaen. Bot.* n. 506, 1843.

The trees at Bablock Hythe were figured in the *Garden*, 123, February 14, 1885.

'At the huge Sinodun hill a pretty belt of trees runs along the water's edge, tall black poplars being the most conspicuous,' *G. D. Leslie in Our River*.

The Black Poplar is never an upright tree, but always slants to a slight extent.

P. nigra is found in all the bordering counties.

CERATOPHYLLACEAE, A. Gray, Ann. Lyc. New York, iv. 41 (1837).

CERATOPHYLLUM, Linn. Gen. n. 944.

C. demersum, Linn. Sp. Pl. 992 (1753). *Horned Pondweed*.

Top. Bot. 170. Syme, E. B. viii. 123, t. 1276. Nyman, 251. Fl. Oxf. 122. Native. Lacustral. Rivers, ditches, ponds. Not common, but scattered through the county. P. August–September.

First record. Wallingford, Mr. W. Willis in *Baxter's Phaen. Bot.* 260, 1837.

1. **Isis.** Buckland, *Boswell*. Buscot. Near Wytham (d).
2. **Ock.** About Wallingford, *Willis*, l. c. Marcham. Wantage. Abingdon (d).
3. **Pang.** Near Moulsoford, in the Thames, the author in *Rep. of Rec. Club*, 1880.
4. **Kennet.** Theale (d). Southcote. Padworth. Aldermaston. Newbury.
5. **Loddon.** Sonning, *Tufnail*. Ponds at foot of Winter Hill, *Britt. Contr.* Near Remenham. Park Place Lake, *Stanton*. Winkfield. Sandhurst. Ruscombe. In the grounds of Frogmore. One growing specimen, which occurred in a stream near the Home Park at Windsor, was nearly enclosed by a species of fresh-water sponge. The *Ceratophyllum* appeared to be healthy despite its environment, which may have been of a symbiotic character.

The foregoing records may be taken to represent the occurrence of the aggregate species since, from the plant so often failing to fruit, it has been impossible to say to which sub-species the specimens belong.

I have appended a 'd' to those records in which I have satisfied myself that the restricted *C. demersum* is found.

Aggregate *C. demersum* is found in all the bordering counties.

In the *Flora of Oxfordshire* I referred to this species, '*Millefolium aquaticum cornutum*, in the ditches about Oxford,' *Merrett's Pinax*; being led to this

conclusion by a specimen so labelled in the Du Bois Herb. Parkinson's description in the *Theatrum* of *Millefolium aquaticum cornutum*, which Merrett cites, evidently refers to a Batrachian *Ranunculus*, either *circinatus* or *Drouetii*.

C. submersum, Linn. Sp. Pl. ed. 2, 1409 (1762).

Top. Bot. 170. Syme, E. B. viii. 124, t. 1277. Nyman, 251.

Native. Lacustral. Ponds, apparently rare; but from fruit being rarely formed or from its being overlooked, some of the records placed under the aggregate plant may belong here. September.

First found in Berkshire by the author in 1893.

2. **Ock.** In a pond near Marcham.

C. submersum is recorded for Oxfordshire and Surrey.

CONIFERAE, B. Juss. Hort. Trianon. (1759).

PINACEAE, Lindl. Nat. Syst. ed. 2, 313 (1836).

JUNIPERUS, Linn. Gen. n. 1005 (Tournefort, Inst. t. 361).

J. communis, Linn. Sp. Pl. 1040 (1753). *Juniper*.

Top. Bot. 379. Syme, E. B. viii. 273, t. 1382. Nyman, 676. Fl. Oxf. 277.

The E. B. plate 1100 was drawn from an Oxford specimen.

Native. Pascual. Grassy chalk downs. Locally common. Shrub. May. First record. It grows much upon the Hills and woody grounds in

Berkshire, *R. Turner, Botanologia*, 166, 1664.

2. **Ock.** I think I have seen this on the northern chalk escarpment.

3. **Pang.** Near the Grotto, Basildon, *Walk. Fl. Oxf.* Very plentiful on the downs near Unhill Wood, Streatley, Basildon, and many other places, *Lousley in Russell's Cat.* Streatley, *Lawson in Herb. Oxf.* Shooter's Hill, Pangbourn, *Tufnail.* King Standing Hill. Moulsoford Downs. Ashampstead.

4. **Kennet.** Weston, *Osmond.* Near Letcombe.

5. **Loddon.** Occasionally in Bisham Wood, *Mill.* Between Henley and Pinkney's Green, *Stanton.*

Juniperus is recorded for all the bordering counties.

TAXUS, Linn. Gen. n. 1006 (Tournefort, Inst. t. 362).

T. baccata, Linn. Sp. Pl. 1040 (1753). *Yew*.

Top. Bot. 380. Syme, E. B. viii. 277, t. 1384. Nyman, 677. Fl. Oxf. 277.

Native. Sylvestral. Woods on the Chalk. Probably planted in other situations. Tree. February-April.

First record. *Taxus baccata*, Dr. Noehden. Undoubtedly wild in the neighbourhood of Aldworth, *Mavor's Agr. Berks*, 1809.

2. **Ock.** Kingston Lisle. Childrey. Lockinge. Letcombe. Uffington. A large tree at Fyfield Manor. An old tree in Didcot Churchyard.

3. **Pang.** Wild near Aldworth, *Mavor*. Plentiful in Beech Wood, and many other woods and hedges about Hampstead Norris, Compton, and Aldworth, *Lousley in Russell's Cat.* Streatley, *Pamplin*. De la Bere, Pangbourn, *Tufnail*. Aldworth Churchyard. Native in Ashampstead Woods, Hampstead Norris, Basildon, Tilehurst, &c.
4. **Kennet.** Near Farnborough. Sandleford. Inkpen. Enborne. Burghfield.
5. **Loddon.** Caesar's Camp. Bearwood. A small tree on Hurst Church, and also on the tower of Shottesbrooke Church. Park Place. Culham Court Woods. Bisham. Ruscombe Churchyard, an old specimen.

Var. *T. fastigiata* (Lindley, Syn. Br. Fl. 241, 1829, as a species), is the *Irish Yew*, which is only known as a cultivated plant in the county, as in churchyards and ornamental grounds.

The Aldworth Yew measures (according to Loudon, *Arboretum*, 1838) 27 feet 3 inches at five feet from the ground. In 1760 it was 27 feet in circumference, see *Hewett's Hist. Compton*. At Hampstead Marshall, says Loudon, there are the remains of a very old yew, the trunk of which was 47 feet in circumference a few years ago, but in 1836 was only 37 feet.

The Yew is recorded for all the bordering counties except E. Gloucester.

PINUS, Linn. Gen. n. 956 (Tournefort, Inst. t. 355).

***P. sylvestris**, Linn. Sp. Pl. 1001 (1753), and of C. B. Pin. *Scotch Fir*. Top. Bot. 379. Syme, E. B. viii. 264, t. 1380. Nyman, 675. Baxt. t. 389. Fl. Oxf. 278.

Once native, now replanted. Sylvestral. Dry heathy woods. Locally abundant in the Kennet and Loddon districts. Tree. May.

First record. *P. sylvestris*, *Mavor's Agr. Berks*, 1809.

1. **Isis.** 2. **Ock.** Occurs as a planted tree in small numbers in the districts of the Isis and Ock, as at Wytham, Cothill, Cumnor Hurst, Boar's Hill, &c.
3. **Pang.** Very common at Hampstead Norris, growing by thousands from self-sown seeds in Eling and Courage Commons, &c., *Lousley in Russell's Cat.* Bucklebury Common. Cold Ash Common. Hermitage. Ashampstead. Oare Hill Wood. Moulsoford Downs, &c.
4. **Kennet.** Pine Cones are found in the Peat beds of the Kennet, *Geol. Newb.* (1864) 25. Mortimer, seedlings plentiful, *Tufnail*. Burghfield. Enborne. Greenham. Aldermaston. Inkpen. Wickham. Farnborough. Tilcombe Green.
5. **Loddon.** Park Place. Bisham Wood. Ashley Hill. Stubbing's Heath. Early. Bearwood. Abundant over the south-western

part of the district from Wokingham to Blackwater, and from Wokingham to Windsor Park and Bagshot.

P. sylvestris occurs under similar conditions in Surrey and Hampshire.

A large number of planted Conifers are to be seen in the county, sometimes in a semi-wild condition.

MONOCOTYLEDONES, Juss. Gen. 21 (1789).

VALLISNERIACEAE, Dumort. Anal. Fam. 54 (1829).

Hydrocharidaceae, Lindl. Veg. King. 141 (1847).

ELODEA, [Rich. in] Michaux, Fl. Bor. Amer. i. 20 (1803).

**Elodea canadensis*, Mich. l. c. *Canadian Thyme*, *American Water Weed*, *Water Thyme*.

Udora canadensis, Nuttall, Gen. N. A. Pl. ii. 242 (1818). *Anacharis Alsinastrum*, Bab. in Ann. Nat. Hist. Ser. ii. (1848) 83. *Philotria canadensis*, Britton, in *Science*, (ii) ii. (1895) 5.

Comp. Cyb. Br. 582. Syme, E. B. ix. 81, t. 1446. Nyman, 678. Fl. Oxf. 279.

Colonist. Lacustral. Streams and ponds, ditches, &c. Widely distributed, but less common in our larger streams than formerly. P. May–September.

First recorded in *Mr. Baxter's MSS.* 1854. 'It has already (1858) ascended the Thames as high as Reading,' *Charles Kingsley, Miscellanies*, i. 181.

The Canadian Water Weed, which reached its maximum of abundance in the years 1866–1874, has now much decreased in quantity, probably from the absence of the male plant. It still occurs in all our districts, not only in the main streams and canals, but also in the ponds and ornamental water, and in small isolated ponds on the Chalk downs. In a 'dew pond' on the Ridgeway it occurred at nearly 800 feet elevation, to which locality it was probably conveyed by birds.

The female flowers are borne on long stalks which readily break off, and may be occasionally seen floating on the water.

The plant was introduced into the Oxford Botanic Garden in 1849. Mr. Baxter noticed the plant in the Thames near Folly Bridge in 1853. Shortly after, so rapid was the growth and extension of the plant over our area, that Mrs. S. C. Hall, in 1859, writes that 'It is in this neighbourhood (Eynsham) we begin to perceive the dangerous results of the recent and rapid growth of the American weed. It has already rendered the Thames in some parts almost impassable.' *Book of the Thames*, 71.

Elodea canadensis is found in all the bordering counties.

HYDROCHARIS, Linn. Gen. n. 999 (Stratiotes, Dill. Gen. 9).**H. Morsus-ranae**, Linn. Sp. Pl. 1036 (1753). *Frog-bit*.*Morsus Rana*, Ger. Em. 818.

Top. Bot. 408. Syme, E. B. ix. 78, t. 1444. Nyman, 678. Fl. Oxf. 278.

Native. Lacustral. Ditches, ponds, slow stagnant streams. Locally common. P. July–August.

First record. *Alba Minor*. Sunt insuper antiquis praetermissae Nymphaeae duae, potrices quidem, et aquarum aluminae: verum regionum duntaxat (aut certe plurimum) Septentrionalium, praesertim Angliae, via quae Londino Oxoniam et Bristoiam ducit, secus et trans aquas viarum pigriores minusque profundas, numerosum exerit haec in tenuioribus pediculis et non dissimilibus folium, fere magnitudine Chelidonii minoris, aut Palustris Calthae, Dotterbloemen vocatae; defluente flore candido Papaveris, Rhædis, aut Melampyri, capitula et semina supersunt, crassiusculo cortice obducta, nullius dum usus, *Lobel, Adversaria*, 257, 1576. Sonning, *Mr. S. Rudge*, 1800, in *Herb. Brit. Mus.*

2. *Ock*. South Hinksey, *Baxter*, 1823. Kennington. Radley. Abingdon, and in ditches by the Thames in several localities.

3. *Pang*. ['Ashridge Wood. Hampstead Norris,' in *Britt. Contr.*, is an erroneous transcript by Mr. Britten.] Near Reading, *Trimen*. Moulsoford. Pangbourn.

4. *Kenet*. Ditches near Reading, *Tufnail*. Southcote.

5. *Loddon*. Sonning, *Rudge*. Foot of Winter Hill. Wargrave, *Melville in Britt. Contr.* Windsor Park, *W. T. Dyer in Phyt. v.* (1861) 367. Frequent in ditches at Hemerton. Remenham, *Mr. Stanton*. Hurley, *G. D. Leslie*. (Figured on the title-page of *Our River*.) Frequent in ponds and ditches (about Marlow), *Mill*. Windsor Home Park, *Bolton King*. Old Moat of Whistley Park, *Melville*. Bulmarsh, *Tufnail*. Twyford. Bisham. Bray. Ruscombe. Old Windsor.

Dillenius considered, I believe, that *Lobel* referred to a form of the White Water Lily.

Hydrocharis is recorded for all the bordering counties except Wilts.

STRATIOTES, Linn. Gen. n. 607.***S. Aloides**, Linn. Sp. Pl. 535 (1753). *Water Soldier*, *Water Aloe*.*Aloides*, Boerhaave. *Militaris Aizoides*, Gerard, 677.

Top. Bot. 408. Syme, E. B. ix. 80, t. 1445. Nyman, 678. Fl. Oxf. 378.

Denizen or native. Lacustral. Small streams. Very local. P. July.

First recorded by Mr. Baxter in *Walker's Flora of Oxfordshire*, 1833.

2. *Ock*. Plentiful in watery ditches by the side of the towing-path near the Cottages in Nuneham Park, but on the Berkshire side

of the river, where it was first pointed out to me by Mr. E. B. Hewlett, *Baxter*. I think I remember to have heard some years ago that Mr. Bicheno had observed it in the same neighbourhood, *Baxter, Phaen. Bot.* 413, 1843. Very plentiful in a small stagnant stream, and in still ditches between Radley and Abingdon. The situation appears to be at first sight in favour of the view that it is here native, but as the plant is not found in the marshy ditches of the upper parts of the Thames, and the locality itself is not far distant from Nuneham Park (from which, however, it is separated by the Thames), it is difficult to arrive at a positive conclusion. Specimens were sent by the author to the *Bot. Exch. Club*, 1892.

4. **Kennet.** Aldermaston Park [planted], *Tufnail*.

Stratiotes is recorded for Surrey and from Oxfordshire, but it is only planted in the latter county, and has been probably introduced to Surrey.

ORCHIDACEAE, Lindl. Nat. Syst. ed. 2, 336 (1836).

[*MALAXIS PALUDOSA*, Swartz in Vet. Akad. Handl. Stock. xxi. (1800) 235.

Is recorded for Surrey and Hants, and may yet reward the searcher in the sphagnum-bogs of the Broadmoor district.]

NEOTTIA, Adans. Fam. ii. 70 (1763).

N. *Nidus-avis*, Rich. in Mém. Mus. Par. iv. (1818) 59. *Bird's-nest*.

Ophrys Nidus-avis, Linn. Sp. Pl. 945 (1753). *Nidus-avis*, Lobel, Ic. & Gerard, 176. *Listeria Nidus-avis*, Hook. Fl. Lond. t. 58.

Top. Bot. 382. Syme, E. B. ix. 122, t. 1478. Nyman, 688. Fl. Oxf. 290.

Native. Sylvestral. Shady woods, chiefly of beech or hazel, among the decaying leaves. Locally common. P. May-July.

First record. Hall Place, Sir J. E. Smith, 1804, in Herb. Linn. Soc.

Published as *Ophrys nidus avis*, Dr. Noehden, *Mavor's Agr. Berks*, 1809.

1. **Isis.** Wood near Cumnor Hill, *Newton Young in Walk. Fl.* Wytham Wood. Appleton Wood.

2. **Ock.** Bagley Wood, *J. Bennell* and *Baxter's MS.* 1812, and *Purt. Midl. Fl.* Still there in 1894. *Marcham, Walker.* Tubney Wood, *Lawson*, 1870, in *Herb. Oxf.* *Steventon.* Wittenham Wood.

3. **Pang.** Plentiful in Beech woods between Pangbourn and Reading, 1839, *W. H. Baxter.* Streatley Wood, *H. Woolcombe, Baxt. Phaen. Bot.* 357. Roadside beyond Basildon, *Dr. Williams*, 1820. *Bennett's Wood, Hewett.* Unwell Wood, *Lawson in Herb. Oxf.* Ashridge Wood, *Hewett.* Bradfield, *Jenkinson.* De la Bere, Pangbourn, *Tufnail.* Plentiful in the woods on the Chalk between Streatley and Reading in the above localities, also in Sulham woods. Yattendon. Ashampstead.

4. Kennet. Weston Wood, *Osmond*. Riever Wood. Tilcombe.
5. Loddon. Bisham Wood, abundant, *Mill*! Between Henley and Marlow, *Winch MS.* Abundant at Park Place, *Stanton*. Most abundantly in the fine beech woods about Hurley, *Smith, Engl. Fl.* iv. 39 (1828)! Ashley Wood. Bowsey Hill. Quarry Wood. *Neottia* is recorded for all the bordering counties.

LISTERA, R. Br. in Ait. Hort. Kew. ed. 2, v. 201 (1813).

L. ovata, R. Br. l. c. *Tway-blade*.

Ophrys Bifolia, Gerard, 326. *Ophrys ovata*, Linn. Sp. Pl. 946 (and of Bauhin).

Top. Bot. 383. Syme, E. B. ix. 120, t. 1477. Nyman, 688. Fl. Oxf. 290. Native. Sylvestral. Woods, marshes, bushy places, &c. Rather common and generally distributed. P. May-August.

First record. Beech Wood near Hall Place, *Sir J. E. Smith*, 1804, in *Herb. Linnean Soc.* *Ophrys ovata*, Dr. Noehden, and Mr. Bicheno, *Mavor's Agr. Berks*, 1809.

The Tway-blade occurs frequently in all the districts, ascending to nearly 800 feet on the White Horse range, so that there is no need to specify localities. In Bagley Wood I found a specimen with the flowers inverted. Specimens with three leaves, one placed above the lower pair, are not rare. I have seen such at Wytham, Appleton, Riever Wood, Ashridge Wood, and in Windsor Park. A form with narrower and more acute leaves occurred at Cothill Bog, &c.

L. ovata is found in all the bordering counties.

[**LISTERA CORDATA**, R. Br. l. c. *Ophrys cordata*, Linn. Sp. Pl. 946 (1753).

Syme, E. B. ix. 120, t. 1476. This very small and graceful plant, which is found growing under the Bracken (*Pteris aquilina*) in heathy situations, has recently been found in the Pine woods at Bournemouth, in S. Hants and Dorset. Special search should be made for it in the Kennet and Loddon districts.]

GYROSTACHIS, Pers. Syn. ii. 511 (1807).

Spiranthes, Rich. in Mém. Mus. Par. iv. (1818) 50, and Orch. Eur. Annot. 20-28 (1817).

G. autumnalis, Dumort. Fl. Belg. 134 (1827). *Lady's Tresses*, *Lady's Traces*.

Ophrys spiralis, var. *a*, Linn. Sp. Pl. 945 (1753). *Spiranthes autumnalis*, Rich. l. c. 59. *Gyrostachys spiralis*, mihi.

Top. Bot. 381. Syme, E. B. ix. 115, t. 1472. Nyman, 689. Fl. Oxf. 270. Native. Pascual. Pastures and downs. Very rare. P. August-September.

First record. *Orchis spiralis*, Mr. Bicheno, *Mavor's Agr. Berks*, 1809.

2. Ock. On the chalk downs near Upton, *Miss Fry*.

3. Pang. ? Streatley, *Pamplin* [unlocalized, probably from the Oxfordshire side of the Thames near Streatley]. Given without

- locality by Mr. Flower in Robertson's *Env. of Reading*, 1843, probably from the same place.
4. Kennet. Hampstead [Marshall] Park, *Bicheno*. Irish Hill [near Kintbury], *Hewett*. Burghfield, *Bird*, 1833. Enborne, *Valpy*.
 5. Loddon. Near Remenham, *G. D. Leslie and Miss Stapleton*.
- G. autumnalis* is recorded for all the bordering counties.
- [**G. AESTIVALIS**, Dumort. Fl. Belg. 134. *Spiranthes aestivalis*, Rich. l. c. 58. Syme, E. B. ix. 116, t. 1473. Is found in two or three localities in the New Forest, S. Hants.]

CEPHALANTHERA, Rich. in Mém. Mus. Par. iv. (1818) 51.

- [**C. ENSIFOLIA**, Rich. l. c. 60. *Sword-leaved Helleborine*.
Serapias Helleborine, var. *longifolia*, Linn. Sp. Pl. 950. *Cephalanthera longifolia*, Fritsch, in Oe. Bot. Zeit. 38 (1888), 81.
Syme, E. B. ix. 128, t. 1484. Fl. Oxf. 288.
- Included in Pamplin's list of Streatley plants in *Phyt.* v. (1854) 157, but almost certainly in error, some form of the White Helleborine being mistaken for it. From its being recorded for all the bordering counties except Bucks, we might reasonably expect it in Berkshire, in which county it may yet be discovered. In Oxfordshire it only occurs over a very limited area in a single locality.]
- [**C. RUBRA**, Rich. l. c. (1818) 60.
Serapias rubra, Linn. Syst. ed. 12, 594 (1767). Syme, E. B. ix. 127, t. 1483.
Has been found very locally in Gloucestershire.]

- C. pallens**, Rich. l. c. (1818) 60. *White Helleborine*.
Epipactis alba, Crantz, Stirp. Austr. vi. 460 (1769). *Cephalanthera alba*, Simonk. Enum. Pl. Transs. 504 (1887). *C. grandiflora*, S. F. Gray, Nat. Arr. ii. 210 (1821). *Epipactis grandiflora*, Sm. E. B. t. 271.
Top. Bot. 386. Syme, E. B. ix. 129, t. 1485. Nyman, 687. Fl. Oxf. 287.
Native. Sylvestral. Beech woods on the Chalk, rather frequent, rare on the Coralline Oolite. P. May-July.
- First record. *Helleborine flore albo*, vel *Damasonium montanum latifolium*, C. B. Pin. In toto montium tractu Henley oppidum attingente, Maio florens, invenitur haec elegans planta (*Bobart*), *Morison's Hist. Ox.* iii. 488, 1699.
1. *Isis*. Very rare, but still occurring on the Coralline Oolite in Wytham Wood, whence there is a specimen in *Herb. Oxf.*
 3. Pang. Streatley, *Dr. Williams' MS.* Unhill Wood and Hampstead Norris, *Lousley in Hewett's Hist.* Near Westbrook, *Hewett*. Bradfield, *Jenkinson*. Kent Wood, Tilehurst, *Tufnail*. Basildon. Withy Coppice. Near Hawpit Farm. Sulham. Purley. Common in the Chalk woods near the river in this district.
 5. Loddon. Near Henley, *Bobart*. Hall Place, 1804, *Sir J. E. Smith in Herb. Linn. Soc.* Beech woods between Henley and Marlow [*J. Woods*] in *Winch add. New Bot. Guide*, 1835. In Bisham Wood, abundantly, *Mill*. Plentiful in the Beech woods above Hurley and

Bisham Abbey, *Sm. Engl. Fl.* iv. 44. Park Place, coming up in the trodden woodland paths, *Stanton*. Ashley Hill. Quarry Wood. Common in the Chalk woods near the river in this district.

The bluish-green foliage and yellowish-white flowers offer a distinct contrast to the yellowish-green translucent leaves and pure white flowers of *C. ensifolia*.

C. pallens is recorded for all the bordering counties.

EPIPACTIS, Adans. Fam. ii 70 (1763).

E. latifolia, All. Fl. Ped. ii. 151 (1785).

Serapias Helleborine, var. *a. latifolia*, Linn. Sp. Pl. 949 (1753). *E. Helleborine*, var. *viridans*, Crantz, Stirp. Austr. l. c. 467 (1769). *Helleborine*. Gerard, 358.

Top. Bot. 383. Syme, *E. B.* ix. 124, t. 1480. Nyman, 688. Fl. Oxf. 289. Native. Sylvestral. Woods and bushy places. Local and not common. P. August–September.

First record. *Helleborine multicaulis radice perplexa*, Mr. Pink, Merrett's Pinax, 1666. *Serapias latifolia*, Dr. Noehden, Mavor's Agr. Berks, 1809.

1. **Isis**. By Cumnor Wood, in the way from Oxford to Eynsham Ferry, *Pink*, l. c. It still occurs in Wytham Wood. Appleton.
2. **Ock**. Bagley Wood, *Baxter in Walk. Fl.* Marcham, *Mrs. Davis*. Tubney.
3. **Pang**. Streatley, *Pamplin*. Hampstead Norris. In Unhill Wood. Haw [pit] farm, 1839, *Hewett*.
4. **Kennet**. West Ilsley Brick Hill, in a hedgerow, *Hewett*. Snelsmore Common, *Russell's Cat.* Wickham, *Mrs. Batson*. High Wood, *Osmond*. Lambourn Woodlands. Burghfield. Aldermaston (type). Brimpton (type). West Woodhay.
5. **Loddon**. Bisham Wood, especially the continuation of it on the right of the Maidenhead Road, *Mill*. Park Place, *Stanton*. Railway embankment near Wellington College, *Penny*. Woodley, *Tufnail*. Bulmarsh Park (type). Windsor Forest.

Perhaps the aggregate *E. latifolia* is more correctly represented by the name of *E. Helleborine*, Crantz, Stirp. Fl. Austr. ed. 2, fasc. vi. 467.

The above localities are for the aggregate species except where the word 'type' is appended.

The aggregate *E. latifolia* is recorded for all the bordering counties.

Var. **MEDIA** (Fries, Mant. ii. 54, 1839, as a species).

2. **Ock**. Near Oxford, *Boswell in Britt. Contr.* 1871. Kingston Lisle, *Bellamy*.
3. **Pang**. *E. media*. Unwell Wood, *the author in Rep. of Rec. Club*, 1881. In a copse on the Ridgeway near Cuckhamsley Knob. East Ilsley. Ashridge Wood.
4. **Kennet**. Brimpton Woods. Catmore Woods.
5. **Loddon**. Bisham Wood, *Britten, Contr.* Ashley Hill.

I have doubts whether this is more than a form of *E. latifolia* growing in a drier or more exposed situation. Our plant is not *E. ovalis*, Bab. in E. B. Suppl. t. 2884, with which it is made synonymous in *Index Kewensis*, but is the *E. media* of Syme, E. B.

E. violacea, Bor. Fl. du Centre Fr. ed. 3, ii. 651. Nym. 688. Top. Bot. 384.

E. purpurata, Sm. Engl. Fl. iv. 41. ? *E. Helleborine*, var. *varians*, Crantz, Stirp. Austr. vi. 467 (1769).

Native. Sylvestral. Open woods. Rare. P. September.

First record. *E. purpurata*, Mr. G. G. Mill in *Phyt.* i. 993, 1843.

4. Kennet. Wickham, Mrs. Batson. West Woodhay, Miss Beale. Woods near Aldermaston, Padworth, and Brimpton.

5. Loddon. 'There is an *Epipactis* growing in the Stokenchurch woods, which is, in its young state, quite purple in both leaves and stem; it must, I suppose, be *E. purpurata*. I have seen it also in Bisham Wood,' Mill, l. c. Quarry Wood.

I have seen *E. violacea* in Oxfordshire, Buckinghamshire, Wiltshire, and it may occur in the other bordering counties.

E. palustris, Crantz, Stirp. Austr. vi. 462 (1769). Marsh *Helleborine*.

Serapias Helleborine, var. *palustris*, Linn. Sp. Pl. 950.

Top. Bot. 385. Syme, E. B. ix. 126, t. 1482. Nyman, 687. Fl. Oxf. 288.

Native. Uliginous. Marshes and bogs. Local. P. July–August.

First recorded by Mr. Baxter in *Walk. Fl.* 259, 1833, and *Phaen. Bot.* 317, 1839.

1. Isis. Right-hand side of the road near the fourth milestone going to Ensham, Baxter, l. c. Pusey, Miss M. Niven.

2. Ock. Frilford Heath. Cothill Bog. Bog on Foxcombe Hill. Bog near Marcham. Bog near Shippon.

5. Loddon. Grounds at Wargrave Hill, Miss Jekyl in Britt. Contr. Woods between Maidenhead Thicket and Great Marlow, J. Woods' MS. (I suspect both these records are errors and belong to aggregate *E. latifolia*.) Peaty margins of the larger lake at Bulmarsh, Tufnail.

It is somewhat curious that none of the peaty bogs in the south of the county should yield this plant, which is almost confined to the bogs on the Oolite formation in the north of the county. The record in Merrett's *Pinax*, quoted under *E. latifolia*, may possibly refer to this species, as it has a creeping root.

E. palustris is recorded for all the bordering counties except E. Gloucestershire.

ORCHIS, Linn. Gen. n. 900 (Tournefort, Inst. t. 247).

[**O. HIRCINA**, Crantz, Stirp. Austr. vi. 484 (1769). *Lizard Orchis*.

Is recorded for Surrey and Hants, but is extinct in both counties.]

O. pyramidalis, Linn. Sp. Pl. 940 (1753). *Pyramidal Orchis*.

Top. Bot. 388. Syme, E. B. ix. 91, t. 1449. Nyman, 694. Fl. Oxf. 295.

Native. Pascual. Dry calcareous pastures, roadsides, chalk downs.

Locally common, but somewhat uncertain in its appearance. P. June-July.

First record. *O. pyramidalis*. Dr. Noehden and Mr. Bicheno in *Mavor's Agr. Berks*, 1809.

1. Isis. Wytham.

2. Ock. Old Stone pit about half a mile west of South Hinksey, *Baxter in Walk. Fl.* 1833. [Mr. Thurland gathered specimens from this locality in 1870. I am afraid it has now gone.] Marcham, *Walker*. Near King Standing Hill.

3. Pang. Streatley, *W. Hewett*, 1839. Slope of hill opposite Basildon Grotto, *Walk. Fl.* 1833. Very fine and deep colour at Pangbourn, 1833, *W. Pamplin*. Sulham, *Tufnail*. Moulsoford Downs, abundant.

4. Kennet. Included in Mrs. Russell's *Newbury Cat.* 1839. Walbury Hill, rare.

5. Loddon. On the Berkshire side of the river near Henley, *Bicheno in Mavor's Agr. Berks*. By the Henley and Maidenhead Road, *Mill*. Park Place. Row Hill. Hemerton, frequent, *Stanton*. Between Twyford and Henley, *Hewett*. Grass slopes under Quarry Wood.

O. pyramidalis is recorded for all the bordering counties.

O. ustulata, Linn. Sp. Pl. 941 (1753). *Dwarf Orchis*.

Top. Bot. 388. Syme, E. B. ix. 92, t. 1450. Nyman, 691. Fl. Oxf. 293.

Native. Pascual. Chalky downs. Locally common. Very rare, if not extinct, on the Oolite. P. May-July.

First record. *Cynosorchis minor Pannonica*. The Lesser Austrian Dogstones, Ger. Em. 207. *Cynosorchis militaris Pannonica*, Park. 1345, and also *O. sive Cynosorchis Pannonica flore albo*, pp. 32, 89, *Merrett's Pinax*, 1666.

1. Isis. Between Botley and Ensham, *Baxter MS.* 1812. Ashbury Downs.

2. Ock. 'On Chiswell Hills, near Oxford,' and the white-flowered form 'in some grounds of Chiswell,' *Merrett's Pinax*. [Now extinct.] Between Ensham Bridge and Abingdon, *Baxter*, 1819, in *Purt. Midl. Fl.* Cherbury Camp, *Boswell* (1867). Plentiful on Blewburton Camp. On the downs near the White Horse.

3. Pang. Hill above Streatley, towards Aldworth, *Mavor's Agr. Berks*. Downs near Ilsley Warren, *Hewett's Hist.* Moulsoford Downs, *Bennett*. Basildon, *Britt. Contr.* Streatley Downs, *Tufnail*. Compton Downs. Lowbury.

4. Kennet. *Armstrong*. On the Letcombe Downs. On the Downs near Ashbury, near Lord Craven's park.

O. ustulata is recorded for all the bordering counties, but it is extremely rare in Oxfordshire.

[*O. PURPUREA*, Huds. Fl. Angl. 334 (1762). *O. militaris*, var. *b*, Linn. Sp. Pl. 941. Syme, E. B. ix. 93, t. 1451. Is reported for Surrey.]

O. militaris, Linn. Sp. Pl. 941 (1753). *Soldier Orchis*.

O. Rivini, Gouan, Ill. 74 (1775). *O. galeata*, Poir. in Lam. Enc. Méth. iv. 593 (1789).

Top. Bot. 388. Syme, E. B. ix. 94, t. 1452. Nyman, 698. Fl. Oxf. 291. Native. Sylvestral. Woods and borders of woods on the Chalk.

Very rare. Almost if not quite extinct. P. May-June.

First record. *Orchis Ant[h]ropophora autumnalis*, *Oreades altera*, Col. 318.

The Man Orchis, found on Chalkey hills near the highway from Wallingford to Redding on Berkshire side of the river by Mr. Brown, MS. note in [How's] *Phyt. Brit. in Mag. Coll. Lib.* before 1659; printed in *Merrett's Pinax*, 1666, 85.

2. Ock. *Orchis galea et alis fere cinereis*, J. B. In latomia vetusta ultra Hinksey haud longe ab Oxonio etiam reperitur, (*Bobart*) *Morison, Hist. Oxon.* iii. 494 (1699). It is somewhat difficult to believe that the true *O. militaris* ever occurred here, but Bobart ought to have known the plant, and his specimens in the Herbarium at Oxford are correctly named.

3. Pang. Between Wallingford and Reading, on the chalky hill, *Brown in Merrett*. Streatley, *Lightfoot*. Hills above Streatley, towards Aldworth, *Rev. Mr. Scholfield in Mavor's Agr. Berks*, 1809. Both Dr. Noehden and Mr. Bicheno are given as including it in their lists of Berkshire plants in that work. More recently Mr. J. T. Syme [Boswell Syme] in the *Phytologist* (1853) 861, says that this fine species still grows, but very sparingly, between Pangbourn and Streatley, Berks. Near Reading, *Hewett*, 1844. Near Streatley, *Rev. Mr. Melvill*, 1886. Near Basildon. The reckless manner in which Dr. Boswell Syme collected the rare Thames Orchids was exceedingly reprehensible.

5. Loddon. About Henley, *Bobart, l. c.* On the precipitous bank of Bisham Wood, near the Quarry, both below and above the path, but sparingly, *Mill in Phyt.* i. (1843) 993.

References to the occurrence of *O. militaris* in Berkshire will be found in many botanical works which it will be unnecessary to quote, as they give no additional information.

O. militaris is recorded for Oxfordshire, Bucks, and Surrey.

O. Simia, Lam. Fl. Fr. iii. 507 (1778). *Monkey Orchis*.

O. tephrosanthos, Vill. Prosp. ii. 16, et Hist. Pl. Dauph. ii. 32 (1787).

Top. Bot. 388. Syme, E. B. ix. 95, t. 1453. Nyman, 690. Fl. Oxf. 292-3. Native. Sylvestral. Borders of woods on the Chalk. Very rare. P. May.

First record. *Orchis Oreades trunco pallido, brachiis et cruribus saturate rubescentibus* . . . found on several Chalkey hills near the highway from Wallingford to Redding on Berkshire side of the river by Mr. Brown, *Merrett's Pinax*, 85, 1666.

3. Pang. As above, *Merrett*. Streatley, rare, *Pamplin in Lond. Fl.* Near Pangbourn, among the chalk hills, *Boswell*. Chalk hills in Berks, *Hook. Brit. Fl.* ed. 3. 374. Streatley, but I have not seen it since 1886. Dr. Boswell Syme in *E. B.* ix. 96 says, 'After searching most carefully for three seasons I have been unable to find it on the south side of the Thames, so I fear it has become extinct there.'

In Morison's (Bobart) Herbarium at Oxford, one specimen of this is placed on the same sheet as *O. ustulata*. In Morison's *Hist. Oxon.* 493, 2, Bobart gives '*Orchis anthropophora foliis angustioribus, spica longiore et tenuiore, nobis*. Fortasse eadem est quae in montosis cretaceis circa Henley, Readingum, aliisque consimilibus locis occurrit, et quam J. Bauhinus Orchitem parvis floribus multis punctis notatis appellavit, qui (si synonyma spectaveris) duas plantas in unam conjungere videtur.' The specimen is *O. Simia*.

The ludicrous figures of *O. Simia* and *O. militaris* in Morison, *Hist. Oxon.* 493, 1 and 2, must be seen to be appreciated.

W. Browne of Magd. Coll., was apparently the first to find *O. militaris* and *O. Simia* in Britain. He probably also supplied the Caversham locality (which Ray thought to be in Berkshire) of *O. Simia* to Ray's *Catalogus Plantarum*.

O. Simia is figured in Gerard's *Herbal*, 156, n. 1 (1597), and in Johnson's *Gerard Emac.* 205, n. 2.

In the *Synopsis of the British Flora*, ed. 2, 260, Dr. Lindley described our plant under the name of *O. macra*, believing that it was distinct from either *O. militaris* or *O. tephrosanthos* [*O. Simia*] of continental authors, but botanists do not agree with his determination.

Oxfordshire is the only county of Britain where *O. Simia* is now known to grow.

O. morio, Linn. Sp. Pl. 940 (1753). *Green-winged Orchis*.

Cynosorchis Morio foemina, Gerard, 158.

Top. Bot. 387. Syme, *E. B.* ix. 96, t. 1454. Nyman, 691. *Fl. Oxf.* 295. Native. Pascual. Meadows, pastures, chalk downs, heaths, and bogs.

Locally abundant. P. May-June.

First record. *O. morio*. Dr. Noehden, *Mavor's Agr. Berks*, 1809.

1. Isis. Buscot. Coleshill. Near Faringdon. Longworth. Cumnor. Wytham. Idstone. Ashbury.
2. Ock. Sunningwell, *Boswell*. Near Bagley Wood, *Baxter*, 1812. Marcham, *Walker*. Tubney, *Lawson in Herb. Oxford*. Denchworth. Wait. Coxwell. Wootton. Wittenham. Uffington. Radley. Kingston Lisle. Steventon. Chilton. Blewbury.
3. Pang. Cow Down at Ilsley, *W. Hewett*. A white-flowered form on Ilsley Downs, *W. Hewett in Brit. Mus. Herb.* Moulsoford Downs. Compton Downs. Bucklebury. Streatley. Bradfield. Frilsham. Stanford Dingley.

4. **Kennet.** Newbury, *Ridley*, *Herb. Brit. Mus.* Mortimer, *Tufnail*. Little Common, Hungerford. Inkpen. On Gibbet Hill. Lambourn Downs. Letcombe Downs. Farnborough.
5. **Loddon.** Meadows near Wellington College, *Penny*. Park Place. Culham Court, *Stanton*. Cranbourn Chase, *Bolton King*. Bulmarsh, *Tufnail*. Bracknell. Long Moor. Near Farley Hill. Stubbing's Heath. Hurley. Cookham.

O. morio has a great range of colour, occurring in all shades, from darkest purple to pure white, and as these are found in the same locality, subject to the same conditions, we cannot attribute the differences in colour to soil, &c.

It frequently occurs in great quantity in some of our pastures, and when, as is often the case, it is accompanied with cowslips, a beautiful effect of colour is produced. Counting by individuals, this is our most common Orchis, but it is not so generally distributed as *O. mascula* or *O. maculata*.

O. morio is found in all the bordering counties.

- O. mascula**, Linn. Sp. Fl. Suec. ed. 2, 310 (1755). *Early Purple Orchis*.
Cynosorchis Morio mas, Gerard, 158. *O. morio*, var. *masculus*, Linn. Sp. Pl. 941 (1753).

Top. Bot. 387. Syme, E. B. ix. 97, t. 1455. Nyman, 693. Fl. Oxf. 295. Native. Sylvestral. Open woods, bushy places, meadows, heaths and chalk downs. Rather common and widely distributed. Begins to flower a fortnight before *O. morio*. P. April 18-July.

First record. *O. mascula*, Dr. Noehden, *Mavor's Agr. Berks*, 1809.

Forms of *O. mascula* are found in which the leaves are unspotted, as at the so-called British village near Faringdon. White and pale pink flowered forms are occasionally found.

O. mascula is widely distributed over the county, and probably occurs in every parish where there is woodland. It also occurs in all the bordering counties.

- O. incarnata**, Linn. Fl. Suec. ed. 2, 312 (1755). *Marsh Orchis*.

Top. Bot. 390. Syme, E. B. ix. 100, t. 1457. Nyman, 692. Fl. Oxf. 295. Native. Uliginal. Marshes and wet meadows. Local, but when it occurs, plentiful. P. June.

First certainly recorded by the author in *Report of Bot. Record Club*, 1880.

1. **Isis.** In the Wytham meadows.
2. **Ock.** Besilsleigh. Tubney, *Rep. of Rec. Club*, 1880, 1882. Frilford. Marcham. Cothill. Near Wantage Road Station, by the Canal side. Abingdon. Between Abingdon and Radley.
5. **Loddon.** Near Early, by the railway, *Tufnail*. Near Coleman's Moor.

O. incarnata is reported from all the bordering counties except Surrey.

- O. latifolia**, Linn. Sp. Pl. 941 (1753). *Marsh Orchis*, *Male-handed Orchis*.
 Top. Bot. 389. Syme, E. B. ix. 100, t. 1458. Nyman, 692. Fl. Oxf.

Native. Pratal and uliginal. Marshes, bogs, wet meadows, and osier-holts. Locally common. P. June-July.

First record. *O. latifolia* [in an aggregate sense], Dr. Noehden, *Mavor's Agr. Berks*, 1809.

1. *Isis*. Wytham. Watchfield. Near Coleshill.
2. *Ook*. Marcham, *Walker*. South Hinksey, *Lawson in Herb. Oxf.* In Hagbourn Moor and many other places, *Lousley in Russell's Cat.* Frilford. Kennington. Abingdon. Bog between Abingdon and Cothill. Steventon.
3. *Pang*. Bradfield, *Jenkinson*.
4. *Kennet*. Weston, *Osmond*. Crookham Heath. Benham. Midgham.
A very narrow-leaved form occurred in osier-beds at Midgham.
5. *Loddon*. Blackwater Meadows, *Penny*. Bulmarsh, *Tu/nail*. Crazey Hill. Thames Meadows near Boulney, *Stanton*. Coleman's Moor. Hurley. Sandhurst.

Some of these records mean the aggregate plant. The leaves are often spotless, as in *O. incarnata*. The Midgham specimen is a curious long-leaved, tall plant, doubtless caused by growing in an osier-bed. It was sent by the author to the *Bot. Exch. Club* in 1892.

At Cothill I have seen a hybrid, *O. latifolia* × *maculata*, which has the solid stem and spreading leaves of *O. maculata*, but the larger flowers of *O. latifolia*.

The figures labelled *O. latifolia* in Curtis, *Fl. Lond.* fasc. v. t. 65, and in Sowerby's *E. B.* t. 2308, are *O. incarnata*.

O. latifolia is found in all the bordering counties.

O. maculata, Linn. Sp. Pl. 942 (1753). *Spotted Orchis*.

Top. Bot. 390. Syme, *E. B.* ix. 101, t. 1459. Nyman, 692. *Fl. Oxf.* 295.

Native. Sylvestral. Woods, thickets, meadows, heaths, and marshes.

Common and generally distributed. P. May-July.

First record. *Orchis, sive Serapias candido flore*, G. 222. Two miles of Oxford from Frier Bacon's Study, *Merrett's Pinax*, 88, 1666. Gerard's description and figure point to the plant being *O. maculata*. 'I saw this species near Newbury in 1755 in moist meadows,' *Peter Collinson's MS.*

The flowers vary much in colour, but with us never assume so dark a shade of purple as they do in North Britain; frequently they are very pale, and the markings on the flower are sometimes quite obscure. Usually they fade somewhat as the flower ages. The spots on the leaves are also very variable in their intensity of colour. Occasionally, as in Wytham, specimens occur in which they are absent.

A heath form at Long Moor had very narrow leaves.

O. maculata, which is also included in *Mavor's Agr. Berks*, 1809, is too frequent and generally distributed to need a list of localities. It is found in all the bordering counties.

[*ACERAS ANTHROPOPHORA*, R. Br. in Ait. Hort. Kew, ed. 2, v. 191 (1813). *Man Orchis*.

Ophrys anthropophora, Linn. Sp. Pl. 948. Fl. Oxf. 297.

Error. Recorded as *Ophrys anthropomorpha*, Man Orchis, near the road from Wallingford to Reading, by Mr. Browne in *Merrett's Pinax*, 1666. Repeated in the *Botanist's Guide*, 1805, and in Mavor's *Agr. Berks*, 1809. It is included by Mr. Pamplin in his list of Streatley plants in the *Phyt.* v. (1854) 153, but he omits *Habenaria viridis*. It is also included by Mr. T. B. Flower in Robertson's *Env. of Reading*, 1843, but in all these cases there is great probability that *Habenaria viridis* was mistaken for the true plant. At any rate it cannot be admitted into the list of Berkshire plants until refound.

Aceras has been recorded for Bucks, Oxfordshire, and Wilts on unsatisfactory authority, and I am not satisfied that the Hampshire records are correct, but it is recorded on good authority for Surrey.]

OPHRYS, Linn. Gen. n. 902 (*Ophris*, Tournefort, Inst. t. 250).

O. apifera, Huds. Fl. Angl. 340 (1762). *Bee Orchis*.

O. insectifera, var. *i*, Linn. Sp. Pl. 948.

Top. Bot. 394. Syme, E. B. ix. 111, t. 1467. Nyman, 698. Fl. Oxf. 298. Native. Glareal. Fields, quarries, brick-pits, chalk downs, railway embankments, &c. Local. P. June-July.

First record. *Orchis Melittias*, Bee Orchis, G. 213, P. 1352 . . . Many places about Oxford, *Merrett's Pinax*, 1666. *Ophrys apifera*, Streatley Hills, Mr. Bicheno, in Mavor's *Agr. Berks*, 1809.

1. **Isis**. A little beyond Merley Wood upon a high meadow, *Dillenius*, 1740, in *Herb. Oxf.* Appleton, *Miss Hoskins*, in *Walk. Fl.* High bank on left-hand side of Cumnor Hill half past the second milestone, *Thurland*. Near Wytham.
2. **Ock**. South Hinksey, *Baxter in Pursh. Midl. Fl.* I am afraid now gone from old stone-pits about half a mile SW. of South Hinksey as recorded by Baxter in *Walk. Fl.* Blewbury. Chilton.
3. **Pang**. East Ilsley Downs, *Hewett's Hist.* [His MS. says: 'On the edge of the downs south of the Warren.'] On Streatley hills, *Dr. Lightfoot's MSS.* 1770, and Mr. Bicheno. Pangbourn, *Britt. Contr.* Abundant on Moulsoford Downs. Lowbury. Sulham.
4. **Kennet**. Burghfield, *C. S. Bird*, 1833. Near the White Horse Hill.
5. **Loddon**. In a plantation on the right-hand side of the road going from Hurley Bottom to Henley, and in a wood near the Druid's Temple, Park Place, *Baxter. Phaen. Bot.* n. 8. Near Quarry Wood.

On the Moulsoford Downs I found one specimen with a white flower, and another in which a two-lipped flower occurred; that is, there were two 'bees' in a single perianth.

O. apifera is recorded from all the bordering counties.

O. ARANIFERA, Huds. Fl. Angl. ed. 2, 392 (1778). *Spider Orchis*.

O. insectifera, var. *d*, Linn. Sp. Pl. 949. Syme, E. B. i. 112, tt. 1469-70. Fl. Oxf. 298.

Is recorded for the counties of Oxfordshire, Surrey, and Wilts, and the Isle of Wight, but I am afraid it is extinct in Oxford, and there is some doubt as to the Surrey record; *O. arachnites* has also been reported for the latter county.]

O. muscifera, Huds. Fl. Angl. 340 (1762). *Fly Orchis*.

O. insectifera, var. *myodes*, Linn. Sp. Pl. 948 (1753). *O. myodes*, Jacq. Misc. ii. 273, 1778-81. *Orchis Myodes*, Ger. Em. 213.

Top. Bot. 395. Syme, E. B. ix. 114, t. 1471. Nyman, 698. Fl. Oxf. 299.

Native. Sylvestral. Woods, thickets, chiefly on the Chalk. Local.

P. May-June.

First record. *Orchis Muscae corpus referens minor*, C. B. Pin. . . . In herbidis montosis, ad sylvarum caeduarum margines, solo praesertim cretaceo v. g. . . . Henley (*Bobart*), *Morison, Hist. Oxon.* iii. 495, 1699. *O. muscifera*, Dr. Noehden, *Mavor's Agr. Berks*, 1809.

2. Ock. By the Genge Brook, near Steventon.

3. Pang. Basildon, *Britt. Contr.* Near Reading, Berks, *Hewett*, 1846. Corpus Wood, near Streatley, *E. F. Witts*, 1836. Sulham, *Tufnail*. Rather plentiful by a wood near Pangbourn, see *Rep. of Exch. Club*, 1892.

5. Loddon. Lady East says she has gathered (near Hurley) the beautiful Fly Orchis and May in flower, May 31, 1818, *Sir J. E. Smith's Corresp.* Hedge in a chalky soil near Cookham, *Gotobed, Bot. Guide*, 1805. Bisham Wood, *Hurst in New Bot. Guide*. Park Place, *Stanton*. In almost all the woods [near Marlow] more or less, *Mill. Quarry Wood*.

O. musciferu is recorded for all the bordering counties.

In Britten's *Contributions*, *O. muscifera* is given from 'Hinksey and Appleton, *Walk.*,' but this is an erroneous transcript for *O. apifera*.

HERMINIUM, R. Br. in Ait. Hort. Kew, ed. 2, v. 191 (1813).

H. Monorchis, R. Br. l. c. *Musk Orchis*.

Ophrys Monochris, Linn. Sp. Pl. 947 (1753). *Monorchis*, Ehrh. Beitr. iv. 147 (1789).

Top. Bot. 394. Syme, E. B. ix. 109, t. 1466. Nyman, 699. Fl. Oxf. 299. Native. Glareal. Chalk downs. Very rare. P. June-July.

First record. Found in Berkshire, *Sm. Engl. Fl.* iv. 27, 1828. The specimen was contributed by Mr. Bicheno. See *Winch MSS*.

4. Kennet. West Woodhay Downs, 1895, *Miss Beales*.

Probably this is the locality where Mr. Bicheno originally found it in the county. I owe the knowledge of its recent occurrence in the county to Mr. A. B. Jackson, and in 1896, owing to Miss Beales' kindness, was enabled to see it growing; it is limited to a small area of the Chalk downs just within the county.

H. Monorchis is recorded for all the bordering counties.

In a tabular arrangement of the comital distribution of plants, this would show the same distribution as the Daisy. The individuals of the latter would number millions to one of the former.

There appears to be some doubt as to Ehrhart's earlier *Monorchis* being a valid generic name, so I have retained the one in general use.

HABENARIA, Willd. Sp. Pl. iv. 44 (1805).

H. conopsea, Benth. in Linn. Soc. Journ. xviii. (1881) 354¹. *Fragrant Orchis*.

Orchis conopsea, Linn. Sp. Pl. 942. *Gymnadenia conopsea*, R. Br. in Ait.

Hort. Kew, ed. 2, v. 191. *Orchis palmata minor flore rubra*, Park. 1358.

Top. Bot. 390. Syme, E. B. ix. 102, t. 1460. Nyman, 695. Fl. Oxf. 296.

Native. Pascual. Chalk downs, limestone pastures, bogs, and marshes.

Locally common. P. June-July.

First record. *Palmata rubella cum longis calcaribus rubellis*, J. B. ii. 1778.

Wytham, Dillenius, circ. 1730, in *Herb. Oxf.* *Orchis conopsea*, Dr. Noehden, *Mavor's Agr. Berks*, 1809.

1. **Isis**. In wet meadows about Wytham, Dillenius. North-west of Wytham Wood, *Bart. in Walk. Fl.* Carswell, *Miss M. Niven*.

2. **Ock**. Between cornfields on banks in Blewbury and Upton fields, *Hewett*. Childswell Hill, *Thurland*, 1857. Cothill. Frilford. Blewburton Hill. White Horse Hill.

3. **Pang**. Ilsley Downs, common, *Lousley in Russell's Cat.* Unwell Wood, *Lawson in Herb. Oxf.* Streatley, *Pamplin*. Sulham, *Tufnail*. Moulsoford Downs. Lowbury. Basildon.

4. **Kennet**. West Woodhay, *Miss Beales*. Chaddleworth, *Osmond*.

5. **Loddon**. Park Place, *Stanton*. Bisham.

Mr. Tufnail tells me that at Sulham the bank may be covered one year with a profuse growth, but that in the following season *Orchis pyramidalis* may be plentiful, while *H. conopsea* scarcely produces a bloom.

H. conopsea, which grows in our wettest bogs and on our driest chalk banks, is recorded for all the bordering counties.

[**H. albid**a, R. Br. in Ait. Hort. Kew, ed. 2, v. 193. Syme, E. B. ix. 103, t. 1461.

Error. 'Lid's Bank, Blewbury, and some other places,' *Lousley in Russell's Cat.* 1830. Probably *H. viridis* was meant. Mr. J. Lousley was a friend of Mr. W. Hewett, author of the *Hist. of Compton*. From the MS. of Mr. W. Hewett, jun., in the British Museum, with coloured drawings of the Berkshire orchids, I find that under the name of *Satyrium albidum* [*Habenaria albid*a] is figured what is probably a specimen of pale-flowered *H. conopsea*. It is certainly not *H. albid*a. The plant from which it was figured came from the downs south of Hare Common, E. Ilsley.

*H. albid*a is not recorded for either of the bordering counties.

¹ Not of Reichb. fil. in *Bonplandia*, ii. (1854) 10. If the strict law of priority as adopted by British authors be carried out, this will require a fresh name, i. e. *H. Gymnadenia*.

H. viridis, R. Br. in Ait. Hort. Kew, ed. 2, v. 192 (1813). *Frog Orchis*.

Satyrium viride, Linn. Sp. Pl. 944 (1753). *Coeloglossum viride*, Hartm. Handb. Skand. Fl. ed. 1, 329.

Top. Bot. 392. Syme, E. B. ix. 105, t. 1462. Nyman, 696. Fl. Oxf. 297. Native. Pascual. Chalk downs, pastures, heaths. Locally common. P. June–September.

First record. *Orchis Batrachites*, Frog Satyrion, [How's] Phyt. Brit. 82, 1650.

See also *Merrett's Pinax*, 85, 1666. Probably Brownes MS. in a copy of the *Phyt. Brit.*, written before 1659, of *O. Anthrophophora*, &c., refers to this species.

1. **Isis**. In many places about Oxford, *How*. Downs near Ashbury. Idstone. Cumnor.

2. **Ock**. Meadows near Oxford, *Baxter in Part. Midl. Fl.* Near Sandford Lock, *Rev. T. O. Marshall*. Sparsholt, *Bellamy*. Wantage, *Bicheno*. By the side of Bagley Wood, *Thurland*. On downs north of the Ridgeway between Gore Hill and Cuckhamsley, *Hewett*. Radley. Blewburton. Chilton. Lowbury. Downs above Lockinge. Letcombe Castle. Uffington. Rather common on the chalk escarpment.

3. **Pang**. Ilsley Downs, *Hewett's Hist.* Unwell Downs, *Sister Jane Frances*. Abundant on Moultsford Downs. King Standing Hill. Lowbury. Streatley.

4. **Kennet**. Near Shaw. Letcombe. Lambourn Downs. Gibbet Hill, over 900 feet.

Var. *brevibracteata* = *Orchis viridis*, var. *brevibracteata*, Brébisson, Fl. Normandie, 311. The northern mountain form has frequently the bracts longer than the flowers, in this they are short or absent. The two forms are worthy of notice.

H. viridis is recorded for all the bordering counties.

H. bifolia, R. Br. in Ait. Hort. Kew, ed. 2, v. 193 (1813). *Smaller Butterfly Orchis*.

Orchis bifolia, Linn. Sp. Pl. 939.

The first record of the aggregate plant appears to be *Orchis sphagodes major et minor*, in many places about Oxford, in *Merrett's Pinax*, 1666.

See also *Sm. Engl. Fl.* iv. 44, 1828. *Orchis bifolia*, Dr. Noehden and Mr. Bicheno in *Mavor's Agr. Berks*, 1809.

H. bifolia, true. Top. Bot. 390. Syme, E. B. ix. 105, t. 1464, but erroneously lettered *H. chlorantha* on the plate. Nyman, 696. Fl. Oxf. 297. Native. Sylvestral. Woods. Local. P. June–July.

First record for true *H. bifolia*, the author, in *Flora of Oxfordshire*, 1886.

1. **Isis**. Wytham Wood.

2. **Ock**. Bagley Wood.

3. Pang. Sulham, *Tufnail*. Near Basildon. Plentiful in a recently cleared coppice.

5. Loddon. Near Wellington College, *Penny* ! Sunningwell.

One of the specimens gathered by Sir J. E. Smith from Hall Place may possibly be this species. Mr. W. Hewett's figure of *H. bifolia* from the Pang district, i. e. 'Ashridge, Wolvers, Unhill, the Scrubbs,' &c., looks as if it were intended for this species, but as I have only seen *H. chloroleuca* in those localities, I have cited his records under that plant.

H. bifolia is recorded for all the bordering counties.

H. chloroleuca, Ridley, in Journ. Bot. xxiii. (1885) 219. *Butterfly Orchis*.

Orchis montana, Schmidt, Fl. Boem. i. 35 (1794). *O. bifolia*, var. γ , Linn. Sp. Pl. 939 (1753). *Habenaria chlorantha*, Bab. in Linn. Soc. Trans. xvii. (1836) 463, not of Sprengel.

Top. Bot. 391. Syme, E. B. ix. 107, t. 1463 (lettered *eu-bifolia* on plate). Nym., 695. Fl. Oxf. 296.

Native. Sylvestral. Woods, thickets, bushy places. Widely distributed, and in some woods abundant. P. June-July.

First certain record, *H. bifolia*, Hall Place, Sir J. E. Smith, 1804, in Herb. Linn. Soc.

1. Isis. Carswell, Miss M. Niven. Appleton. Wytham. Idstone Wood. Buscot.

2. Ock. Marcham, Walker. Bagley Wood. Cothill. Radley. Tubney. Wittenham. Steventon.

3. Pang. Norcott. Ashridge. Unhill. Wolvers. The Scrubbs, Hewett. Sulham, *Tufnail*. Streatley, Pamplin, as *H. bifolia*. Basildon. Compton. Fence Wood. Ashampstead.

4. Kennet. Woodhay Common, Russell's Cat. Weston. Riever Wood. Enborne. Lambourn Woodlands. Tilcombe. Templeton.

5. Loddon. Hall Place, Sir J. E. Smith. In beech woods above Hurley, and Bisham Abbey, Sm. Engl. Fl. Bisham Wood, Mill. Park Place, Stanton. Windsor Forest. Binfield. Ashley Hill. Bowsey Hill.

H. chloroleuca is found in all the bordering counties.

IXIACEAE, Ecklon, Verz. 18 (1827).

IRIDACEAE, Lindl. Nat. Syst. ed. 2, 332 (1836).

IRIS, Linn. Gen. n. 57 (Tournefort, Inst. tl. 186-8).

I. foetidissima, Linn. Sp. Pl. 39 (1753). *Stinking Iris*, Gladdon.

Top. Bot. 396. Syme, E. B. ix. 143, t. 1494. Nym., 702. Fl. Oxf. 300.

Native. Sylvestral. Woods, thickets, usually on chalk or limestone soil. Local and rare. P. May-July.

First record. Bagley Wood, Mr. Baxter in *Walker's Flora*, 1833.

1. **Isis.** Reported near Cumnor, *Boswell*. In a copse near Strattenborough Castle.
2. **Ock.** Bagley Wood, *Baxter*, l. c. ! Denchworth, *Wait*. Near Kingston Lisle.
3. **Pang.** Streatley, *Pamplin*. [Probably in Oxfordshire.] Plentiful in a coppice near Hawpit Farm. Moulsoford. Tilehurst.
4. **Kennet.** Hampstead Marshall, near the Kennet Canal.
5. **Loddon.** New Lock, abundantly, *Mill* [? *Bucks*]. Bisham Wood. *Britten*. Park Place, Rose Hill, *Stanton*.

Iris foetidissima is found in all the bordering counties.

This is another case in which a tabular arrangement would show the plant equally distributed with the Yellow Iris, but the number of individuals of the one would be vastly outnumbered by the other.

I. Pseudacorus, Linn. Sp. Pl. 38 (1753). *Yellow Flag*.

Pseudacorus, Bock. *I. vulgaris*, Gerard, 46.

Top. Bot. 397. Syme, E. B. ix. 145, t. 1495. Nyman, 702. Fl. Oxf. 300.

Native. Paludal. By rivers, brooks, streams, and marshy places.

Common and widely distributed. P. May-July.

First record. Very common in muddy ditches, grows in Hagbourn Moor, in Church Moor at Blewbury, and in all the ditches that have much mud in the Vale of Berks, Mr. J. Lousley in *Russell's Cat.* 1839. Wash Water and Bagnor Marsh, Dr. J. Bunny.

In Berkshire, *I. Pseudacorus* is found under two modifications—the true *I. Pseudacorus* of Boreau, Fl. du Centre Fr. ed. 3, ii. 635, described as var. **GENUINUS** in Syme, l. c., is the rarer form in the Thames Valley and probably in Berkshire, but I have seen it in Wytham Wood. at Cothill, at Benham, near Sandhurst and in Windsor Park.

The second is the common plant of the Thames Valley, and is the var. **ACORIFORMIS**, Syme, l. c. *Iris acoriformis*, Boreau, l. c., which is abundant in all the districts. Dr. J. T. Boswell Syme says it is common by the Thames from Streatley downwards. See *Rep. of Bot. Exch. Club*, 1867.

The Iris, which is figured on p. 163 of *Our River*, by Mr. G. D. Leslie, occurs abundantly in all the bordering counties.

***I. GERMANICA**, Linn. Sp. Pl. 38 (1753), not of Sibthorp.

Alien. Occurs as a relic of cultivation by the railway near Twyford.

****SISYRINCHIUM ANGUSTIFOLIUM**, Miller, Gard. Dict. ed. 8 (1768). Syme, E. B. ix. 138, t. 1491.

S. Bermudiana, Linn. Sp. Pl. 954, p. m. p.

Alien. Found in Wellington College grounds by Mr. E. Willett, 1874. It was not known in the gardens there.

CROCUS, Linn. Gen. n. 53 (Tournefort, Inst. t. 183).

***C. vernus**, All. Fl. Ped. l. c. 84 (1785). *Spring Crocus.*

C. sativus, var. *vernus*, Linn. Sp. Pl. 36 (1753).

Comp. Cyb. Br. 579. Syme, E. B. ix. 153, t. 1499. Nyman, 708.

Denizen. Pratal. Meadows. Very local. P. March-April.

First record. Inkpen, Miss Beales, about 1894.

4. **Kennet.** Very abundant in a pasture, which is not near houses, in the parish of Inkpen. The locality is a sloping pasture, a part of which has been excavated for clay for the adjoining pottery, but the *Crocus* is more abundant on the untouched portion of the field. It occurs in great quantity, spreading even into the hedgerows, and is also found sparingly in some adjoining fields. From inquiries made, I find it has been known to grow here for nearly a century, but there appears no doubt that it has extended itself during the last twenty years.

The *Crocus* here has a wide range of colouring, varying from the darkest violet-purple to white, but there is also a form, not alluded to in our British text-books, in which the inner perianth segments are beautifully veined with darker lines, the dark primary veins and a large number of small secondary ones crossing one another obliquely from the margin. This feathered form is figured in Maw's *Monograph of the Genus Crocus*. Dr. Boswell Syme, in E. B. ix. 153, describes the perianth-segments as being darker towards the base, but all that I have seen are darker at the apex.

C. vernus is recorded for the counties of Oxford, Surrey, and Hants, but in all cases as an introduced plant.

[**GLADIOLUS ILLYRICUS**, Koch, Syn. Fl. Germ. ed. 2, 806 (1845). Syme, E. B. ix. 141, t. 1493.

Occurs somewhat plentifully in a few localities in the New Forest, growing amid Bracken.]

LEUCOJACEAE, Batsch, Gen. Pl. Jen. x. 30 (1786).

AMARYLLIDACEAE, Lindl. Nat. Syst. ed. 2, 328 (1836).

NARCISSUS, Linn. Gen. n. 364 (Tournefort, Inst. t. 185).

N. Pseudo-narcissus, Linn. Sp. Pl. 289 (1753). *Daffodil.*

Pseudonarcissus Anglicus, Gerard, 115.

Top. Bot. 397. Syme, E. B. ix. 157, t. 1501. Nyman, 709. Fl. Oxf. 300.

Native. Sylvestral. Woods, coppices, &c. Local, but often plentiful over a limited area. P. February-April.

First record. *N. pseudonarcissus*, Mr. Bicheno, *Mavor's Agr. Berks*, 1809.

1. **Isis.** Lower Inlands and Long close, Appleton, *Barrett in Baxt. Phaen. Bot.* 73.

2. **Ock.** Blewbury, in orchards, *Lousley*. Hinksey, *Dyer* [*? N. major*]. *Marcham, Walker*. Bagley Wood. Tubney Wood. Besils'eigh.

Powder Hill Copse. The plant recorded by Mr. Lousley from orchards at Blewbury was probably *N. major*.

3. **Pang.** Orchards, Hampstead Norris, *Lousley* [*? N. major*]. *Streatley. Pamplin.* Near Curridge Common. *Hawkridge.* An escape near Yattendon.
4. **Kennet.** Wickham, *Mrs. Batson.* Woods (near Newbury), *Bicheno.* Hampstead Marshall Park, *Weaver.* Shinfield, *Tufnail.* Welford Woods, *Osmond.* Near Inkpen. In a wood near Snelsmore Common. Irish Wood, Kintbury. Lower Bucklebury, in the 'Daffodil meadows.' Near Silchester.
5. **Loddon.** Ambarrow Wood. Arborfield, *Penny.* Ashley Hill Wood. By the Loddon.

Matthew Arnold in *Thyrsis* alludes to the Powder Hill Copse locality in the line, 'I know the Copse that hides the Daffodil.'

Narcissus Pseudo-narcissus is found in a more or less native condition in all the bordering counties.

****N. MAJOR**, Curtis, Bot. Mag. t. 51 (1787), not of Lois.

N. grandiflorus, Salisb. Prod. 221. Comp. Cyb. Br. 580. Syme, E. B. ix. 168. Nyman, 709. Fl. Oxf. 301.

Denizen. Fields, orchards, and plantations. Rather scarce, but scattered through the county. P. March-April.

First certainly recorded by the author in 1887.

1. **Isis.** Near Appleton. Buscot.

2. **Ock.** Dean Court. Besilsleigh. Sunningwell, the Rectory field, plentiful. Boar's Hill, under furze bushes, the var. *obesus*, Gr. et Godr., Fl. Fr. iii. 254, which, as in almost all of the following records, is the double-flowered cultivated plant. Bagley Wood, as a relic of cultivation. Radley.

3. **Pang.** Bucklebury. Marlstone.

4. **Kennet.** Southcote. Kintbury.

5. **Loddon.** Shurlock Row. Ashley Hill, as a relic of cultivation. In the private portion of Windsor Park.

As a more or less naturalized plant, *N. major* is recorded for Oxford and Hampshire, and I have seen it in Buckinghamshire near Boarstall.

****N. BIFLORUS**, Curtis, Bot. Mag. t. 197 (1792). *Pale Narcissus.*

Comp. Cyb. Br. 580. Syme, E. B. ix. 161, t. 1503. Nyman, 710. Fl. Oxf. 301. Alien. Grass fields near houses. Rare. P. May.

4. **Kennet.** Grange Farm [*Mr. Bicheno*], *Winch add. in New Bot. Guide*, 1835. Near Newbury, *Herb. Mrs. Cecil*, 1869. Near Shaw, *Jackson*. Possibly the three records refer to the same locality.

As a somewhat naturalized plant *N. biflorus* is recorded for all the bordering counties except E. Gloucestershire and Bucks, but I have seen it in the latter county in fields near Boarstall.

[**N. POETICUS**, Linn. Sp. Pl. 289 (1753). *Pheasant's Eye.*

Comp. Cyb. Br. 580. Syme, E. B. ix. 162, t. 1504. Nyman, 710. Fl. Oxf. 301. Naturalized near the Keeper's house at Woodley, *Tufnail*. It is naturalized in Oxfordshire.]

[**N. INCOMPARABILIS**, Miller, Gard. Dict. ed. 8 (1768). Syme, E. B. ix. 160, t. 1502.

Is recorded for Hampshire, but only as an escape from cultivation.]

GALANTHUS, Linn. Gen. n. 362.**G. nivalis**, Linn. Sp. Pl. 288 (1753). *Snowdrop*.

Comp. Cyb. Br. 580. Syme, E. B. ix. 167, t. 1507. Nyman, 714. Fl. Oxf. 303. Denizen or alien. Orchards, fields, plantations, &c. Rare, and usually near houses. P. February–March.

First recorded in *Lyson's Magna Brit.* 1806 [by Dr. Beeke], and by Mr. Bicheno in *Mavor's Agr. Berks*, 1809.

1. **Isis.** Near Appleton, *Miss Hoskins in Baxt. Phaen. Bot.* 33. Wytham.
2. **Ock.** Besilsleigh, *Miss Hoskins in Baxt.* (In this locality it is the remains of the old garden of Speaker Lenthall.) Near Sunningwell, but as an escape, as also in Bagley Wood. Radley.
3. **Pang.** Wild, and abundant in a hedge-row near Eling, Hampstead Norris, &c., *Lousley in Russell's Cat.* Purley, *Tufnail.* Near Reading, *Boswell.* Bradfield, *Jenkinson.* Marlstone Park. Bucklebury. Hawkridge. Near Curridge Common. Possibly a denizen in this area.
4. **Kennet.** The *Galanthus* grows very plentifully in a wild state in Ufton Wood, *Lyson.* About Enborne plentiful, but probably an outcast originally from the gardens, *Bicheno*, l. c. Lane leading to Enborne. Meadow near the 'Bell,' Boxford, *Bunny in Russell's Cat.* Snelsmore, *Herb. Mrs. Cecil.* Mortimer, *Cozens.* Weston, *Osmond.* Woods near Snelsmore Common. Inkpen. Kintbury. Ham Wood.

5. **Loddon.** Loddon Bridge, *Baxter.* Arborfield, *Taylor.* Shurlock Row. Ashley Hill. Frogmore.

As a more or less naturalized plant, *Galanthus* is recorded from all the bordering counties except E. Gloucestershire and Bucks, but I have seen it semi-wild in the latter county near Wycombe and Medmenham.

LEUCOJUM, Linn. Gen. n. 363 (*Narcisso-Leucojum*),

(Tournefort, Inst. t. 208).

L. aestivum, Linn. Syst. ed. x, 975 (1759). *Summer Snowflake*, *Loddon Lilies.*

Top. Bot. 398. Syme, E. B. ix. 164, t. 1505. Nyman, 714. Fl. Oxf. 302. Native. Paludal. River-sides, osier-holts, &c. Locally common. P. April–June.

First record. Reading, Mr. Murray in *E. B.* t. 621, 1799.

2. **Ock.** Between Ifley and Sandford, *Rev. W. T. Bree in Pert. Midl. Fl.* Near Sandford Lasher, *Dyer.* The '*L. vernum*' recorded in *Murray's Guide* to Berkshire from the neighbourhood of Shillingford is this species. *Mr. F. Walker* marks it in his list of plants seen about Marcham, Tubney, &c. Near Wittenham. Near Clifton Hampden.

3. **Pang.** Between Wallingford and Reading, by the Thames.

- [4. **Kennet.** It occurs on the Kennet above Chilton Foliat in Wilts.]
 5. **Loddon.** Near Reading, *Murray in E. B.*, see also *Bot. Guide*, 1805, and *T. B. Flower in Phyt.* (1854) 53. 'Mr. Bicheno, Not uncommon on the islands and banks of the Thames near the efflux of the Loddon,' *Mavor's Agr. Berks*, 1809. On the banks of the Thames between the Mill and the Pound at Sonning, *Burt in Baxt. Phaen. Bot.* 55. Near Windsor, *Herb. Brit. Mus.* Abundant near Henley, *Stanton*. On several of the Eyotts here, and below the Marsh and Hambledon Lock, the beautiful Snowflake can be found in masses, *G. D. Leslie*. Sindlesham Mill, *Tufnail*. Near Wargrave. I have seen them used for altar decoration at Wargrave Church. By the Loddon in great luxuriance and beauty, *the author in Rep. of Exch. Club*, 1892.

The fruits of *Leucojum*, which are of considerable size, remain on the stalk for some time, floating (from their porous structure) upon the water until disarticulation of the stalk takes place, when they are carried down the stream till they become stranded on the margin among the flotsam and jetsam. There decay of the cellular structure takes place, first at three places on the apex of the fruit, through which the seeds escape. I have seen large quantities of the fruits (resembling small olives) on the streams in this district. It is to be hoped that this great adornment of our rivers will not be too recklessly gathered. Large quantities from Shillingford have been sold in the Oxford streets recently.

Leucojum is recorded for Oxfordshire, Bucks, and North Wilts.

****L. PULCHELLUM**, Salisb. Parad. t. 74 (1806?). (Richter gives the date as 1796.)

L. Hernandezii, Cambess. Mém. Mus. Par. xiv. (1827) 315. Nym. 714.

Alien., Pointed out to me by the late Mr. G. Harris of Oxford, in the hedge near Bagley Wood, but I could find no evidence as to its being a garden escape, as it was not near houses, nor could I find it in any of the gardens at Kennington.

A stranger in 1894 brought me some specimens which he said he had gathered in a wood on Boar's Hill, but I have not been able to corroborate his statement.

[**L. VERNUM**, Linn. Sp. Pl. 289 (1753). Syme, E. B. ix. 165, t. 1506. Once found in Oxfordshire; is now extinct.]

TAMACEAE, Gray, S. F. Nat. Arr. ii. 189 (1821).

DIOSCOREACEAE, Lindl. Nat. Syst. ed. 2, 359 (1836).

TAMUS, Linn. Gen. n. 991 (*Tamnus*, Tournefort, Inst. t. 28).

T. communis, Linn. Sp. Pl. 1028 (1753). *Black Briony*.

Top. Bot. 406. Syme, E. B. ix. 170, t. 1508. Nyman, 718. Fl. Oxf. 305.

Native. Septal. Hedges, thickets. Common, and widely distributed.

P. May-July.

First recorded by Dr. Noehden in *Mavor's Agr. Berks*, 1809.

The Black Briony is so frequently seen in our hedges, especially on

calcareous soil, that it is unnecessary to enumerate localities, but it is absent from considerable areas of the heathy portion of the county.

Tamus is recorded for all the bordering counties.

LILIACEAE, Adans. Fam. ii. 150 (1799).

RUSCUS, Linn. Gen. n. 1008 (Tournefort, Inst. t. 15).

R. aculeatus, Linn. Sp. Pl. 1041 (1753). *Butcher's Broom*, *Knees Holly*.

Top. Bot. 403. Syme, E. B. ix. 184, t. 1516. Nyman, 715. Fl. Oxf. 303.

Native. Sylvestral. Woods on the Chalk, probably alien elsewhere.

Local, not common. P. January-March.

First record. *Ruscus*. This bushe groweth verve plenteously in . . .

Barkeshyre, *Turner's Herbal*, ii. 122, 1562. Also recorded in *Coles'*

Adam in Eden, 361, 1657, and more precisely 'In sylvis . . . haud

longe a Readingo oppido, aliisque copiose nascitur,' (Bobart) in

Morison, Hist. Oxon. iii. 540, 1699. *R. aculeatus*, Dr. Noehden,

useful in domestic economy, *Mayor's Agr. Berks*, 1809.

1. **Isis**. Near Buckland, but most probably planted.

3. **Pang**. Near Reading, *Bobart*. Streatley Wood, *Woodcombe*. Bradfield, *Witts in Baxt. Phaen. Bot.* 474. Basildon Wood. Sulham. Kent Wood, Tilehurst. Certainly native in this district.

4. **Kennet**. Weston, *Osmond*.

5. **Loddon**. Near Wellington College. Finchampstead Ridges, Penny. Park Place.

The *R. laxus*, Sm. in Linn. Soc. Trans. iii. (1797) 334, is not a species or even a variety, as given in Eng. Fl. iv. 235, but only the male plant.

Ruscus is recorded for all the bordering counties except E. Gloucester.

****ASPARAGUS OFFICINALIS**, Linn. Sp. Pl. 313 (1753), var. **ALTLIS**, Linn. l. c.

Asparagus. Syme, E. B. ix. 182, t. 1515. Comp. Cyb. Br. 582. Fl. Oxf. 303.

Alien. Waste ground, tops of garden walls, &c. Evidently a garden escape, or from the seeds being carried by birds. I have found it in all the districts, but it does not become permanently established.

POLYGONATUM, Adans. Fam. ii. 54 (Tournefort, Inst. t. 78).

P. multiflorum, All. Fl. Ped. i. 131 (1785). *Solomon's Seal*.

Convallaria multiflora, Linn. Sp. Pl. 315 (1753).

Top. Bot. 405. Syme, E. B. ix. 177, t. 1513. Nyman, 717. Fl. Oxf. 303.

Native. Sylvestral. Woods and thickets. Locally abundant. P.

April-July.

First record. *Polygonatum*, Ger. [757]. In a field adjoining to the

Wash at Newberry, belonging to Mr. Gyles, now Mayor, and in

several other places of Barkshire, Mr. Horsnell in *Ray's Cat. Pl.*

Ang. 248, 1670. In Comit. Bercher. copiose provenit, (Bobart)

Morison, Hist. Oxon. iii. 1699.

3. **Pang.** In Corpus Wood, two miles from Streatley, 1819, *Barter in Pert. Midl. Fl.* Plentiful in Park Coppice and Layercroft Wood, Hampstead Norris, *Lousley in Russell's Cat.* Ashridge Wood, *Hewett's Hist. and the author in Rep. of Bot. Exch. Club*, 1892. Ilsley, *Boswell*. Bradfield, *Jenkinson*. Unwell Wood, at 530 feet, *West*. Near Frilsham. Cold Ash Common Wood. Fence Wood. Hawkrigge Wood. Bennet's Wood. Oare Wood. Oarebury Hill Wood. Langley Wood. Roebuck Wood. Bucklebury. Ashampstead. Yattendon. Near Marlstone. Englefield. Near Tilehurst. Standford Dingley. Fence Wood. Abundant and luxuriant in Ashridge Wood and in rather wet low-lying woods by the Pang near Tidmarsh. Sometimes with a branching stem, when it is var. *ramosa* (Doell. Fl. von Baden, 384 sub *Convallaria*), as in Ashridge.
4. **Kennet.** Near the Wash, Newbury, *Ray, l.c.* Common in woods near Newbury, *Bicheno in Mavor's Agr. Berks.* Kintbury, *Golobed*. W. Woodhay, *Reeks in Britt. Contr.* Wickham, *Mrs. Batson*. Sandford, *Weaver*. In Wasing Wood, *Lightfoot's MSS.* Penge Wood, *Tufnail*. Near Enborne. Aldermaston. Ufton Wood. Padworth. Brimpton. Abundant in Riever Wood. Tilcombe Green.
5. **Loddon.** Between Shinfield and Swallowfield, *Tufnail*. Finchampstead Woods, common, *Penny, in Journ. Bot.* 1873. Ashley Hill Wood.

One of our most elegant plants, from its arching habit, delicate leaves, and drooping flowers. *P. multiflorum* has a curious distribution in the county. It is absent from the Isis and Ock districts, and from the northern part of the Pang district, Ashridge and Unwell Woods being two of its more northern stations. Unlike many of the rarer plants, *Polygonatum* appears to shun the river frontage. In the central and southern portions of the Pang, and in the western part of the Kennet district, it is very abundant, and in Riever Woods grows at an altitude of nearly 800 feet. In the extreme south of the Loddon district it appears to be rare or absent, that is, over the Forest district of Windsor, and it does not appear in the eastern chalk woods by the Thames. On the Oxfordshire side of the Thames I only know of it in one station.

Polygonatum multiflorum is recorded for all the bordering counties.

[**P. OFFICINALE**, All. Fl. Ped. 131 (1785).

Convallaria Polygonatum, Linn. Sp. Pl. 315. *P. Polygonatum*, Jirasek ex Schult. f. Syst. vii. 299. Syme, E. B. ix. 178, t. 1512.

Is recorded for Hants, Wilts, and Gloucestershire, and may possibly be found in the western part of the Kennet district.]

CONVALLARIA, Linn. Gen. n. 383.

C. majalis, Linn. Sp. Pl. 314 (1753). *Lily of the Valley*.

Top. Bot. 404. Syme, E. B. ix. 180, t. 1514. Nyman, 717. Fl. Oxf. 304. Native. Sylvestral. Woods and coppices. Very local and rare. P.

May-June.

First recorded in *Coles' Adam in Eden*, 25, 1657.

2. **Ock.** In Bagley Wood . . . *Coles' Adam in Eden. May Lily.* It grows in Chilsey Hills, *MS. in Lyte's Herball*, 1660. Dr. Williams found it there in 1820, and I have seen it in a barren state there. Abundant in Bagley Wood towards Sunningwell, *Benwell*, 1813. Found sparingly there still.
3. **Pang.** In a small island in the Thames, opposite Straw Hall near Reading, *Burt in Buxt. Phaen. Bot.* 78. [The locality may be in the Loddon district, and would be more appropriate for *Leucojum*.] *Streatley, Tufnail* [not found recently].
4. **Kennet.** Wasing Wood, *Lightfoot's MSS.* 1770. Enborne and Hampstead [Marshall] Woods, *Bunny in Russell's Cat.* In a coppice near Greenham Chapel, *Bicheno in Mavor's Agr. Berks.* Winterbourn Wood, *Osmond.* Sandleford Wood. Wood near Silchester. Wood near Aldermaston Soak.

The Cliveden locality, cited by Mr. Britten for Berks in his *Contributions*, is in Bucks.

Convallaria is recorded for all the bordering counties.

- [**UNIFOLIUM QUADRIFIDUM**, All. Fl. Ped. i. 124 (1785). *U. Bifolium*, mihi. *Maianthemum Convallaria*, [Weber] ex Wigg. Prim. Fl. Hols. 15 (1780). *M. Bifolium*, DC. in Redouté Lil. iv. t. 216 (1805). *Convallaria bifolia*, Linn. Sp. Pl. 316.

Has been found in an apparently wild condition in Oxfordshire near Thame, but hitherto I have not been able to discover the precise locality.]

ALLIUM, Linn. Gen. n. 370 (Tournefort, Inst. t. 206).

- A. vineale**, Linn. Sp. Pl. 299 (1753). *Crow Garlic.*
 Top. Bot. 400. Syme, E. B. ix. 210, t. 1534. Nyman, 736. Fl. Oxf. 308.
 Native. Agrestal, septal. Dry banks, old wall-tops, hedge-sides, meadows, and cornfields. Local, but not rare. P. June–August.
 First record. *Allium sylvestre* grows . . . also on the Hinksey Hills, *MS. in Lyte's Herball*, 1660. *A. vineale*, Dr. Noehden in *Mavor's Agr. Berks*, 1809.
1. **Isis.** Near Bablock Hythe. Coleshill. Watchfield.
 2. **Ock.** On the Chilswell Hill, *MS. in Lyte.* (There in 1897.) Jenny Bunting's Parlour, *Boswell.* In the cornfields about Aston [Tirrel] amongst wheat. In the wet lands between Moreton and Mackney, *Lousley in Russell's Cat.* Marcham, *Walker.* Denchworth, *Wait.* Wittenham. Blewbury. Cholsey. Between Lockinge and Wantage. Near Frilsham.
 3. **Pang.** Sulham, *Tufnail.* Frilsham. Bottom Farm. Hermitage. Bucklebury. Purley. Pangbourn.
 4. **Kennet.** Cornfields at High Wood and North Heath, *Russell's Cat.* Bagnor, *Weaver.* Shefford. Near Hungerford.

5. **Loddon.** Aston Lane, Remenham, *Stanton*. Near Sandford Mill, *Salmon*. Sonning meadows, *Tufnail*. Near Maidenhead Bridge, *Dyer*. Windsor, *Everett*. Windsor, *Bolton King*. Ford, Wellington College, *Penny*. Ruscombe. Twyford. Maidenhead. Hurlay. Wargrave. Meadows near Cookham. Near Bray. Near Loddon Bridge, by the river in a small islet. Bearwood. Jouldern's Ford.

A great number of the above records belong to the var. *COMPACTUM* (Thuill. Fl. Par. 167, as a species), in which the flower-head consists entirely of bulbils.

A. vineale is recorded for all the bordering counties.

A. oleraceum, Linn. Sp. Pl. 299 (1753).

Top. Bot. 399. Syme, E. B. ix. 212, t. 1535. Nyman, 741. Fl. Oxf. 309. Native. Pratal. Upland meadow. Very rare. P. July.

First found in Berkshire by the author in 1891.

1. **Isis.** In an upland meadow near Watchfield.

The *A. oleraceum*, reported from Bottomstead Farm near Newbury (see Fl. Hants) in *Hawkins' Guide*, is probably *A. vineale*.

A. oleraceum is only recorded for Surrey and Hants of the bordering counties.

[**A. SCHOENOPRASUM**, Linn. Sp. Pl. 301 (1753). Syme, E. B. ix. 214, t. 1537.

Error. *A. Schoenoprasum*. Chived Garlic, Dr. Noehden, meadows and pastures, *Mavor's Agr. Berks*, 1809. In a meadow called Horse Croft at Blewbury, and in some other moist meadows, *Mr. J. Lousley in Russell's Cat.* 1839.

Both these records are erroneous; probably forms of *A. vineale* were meant.]

A. ursinum, Linn. Sp. Pl. 300 (1753). *Ramsons*.

Top. Bot. 401. Syme, E. B. ix. 218, t. 1540. Nyman, 738. Fl. Oxf. 309.

Native. Sylvestral. Damp woods and bushy places. Very local. P. May-June.

First record. *Ramsons* grows in Merley Wood, MS. in *Lyte's Herball*, 1660.

1. **Isis.** Merley Wood, MS. in *Lyte*. Wytham Wood.
2. **Ock.** Marcham, *Walker*.
3. **Pang.** Sulham, *Tufnail*. Bucklebury, *L. G. Sutton*. Unwell Wood.
4. **Kennet.** Given in *Mr. Russell's Newbury Cat.* 1839. Inkpen near Newbury, *Hewett*. Near Newbury, *Mrs. Cecil, Herb.* Lambourn Place, *Osmond*. Near Kirby Hall.
5. **Loddon.** Arborfield, *Taylor*.

A. ursinum is recorded for all the bordering counties.

MUSCARI, Miller, Gard. Dict. ed. 7 (1759) (Tournesfort, Inst. t. 347).

***M. RACEMOSUM**, Miller, Gard. Dict. ed. 8 (1768). *Grape Hyacinth*.

Hyacinthus racemosus, Linn. Sp. Pl. 318. *Botryanthus odorus*, Kunth, Enum. iv. 311.

Comp. Cyb. Br. 334. Syme, E. B. ix. 201, t. 1529. Nyman, 734. Fl. Oxf. 308. Denizen or alien. Railway banks. Very rare. P. March-May.

First record. *Hyacinthus racemosus*, Dr. Lamb in *Sm. Engl. Fl.* ii. 149, 1824.

4. Kennet. Near Newberry, *Dr. Lamb*, l. c. Mr. Weaver pointed it out to me on a railway bank near the Station; of course when Dr. Lamb recorded it there was no railway, but neither Mr. Weaver, Mr. Jackson, or myself have been able to find it elsewhere in the neighbourhood.

It is recorded as an introduced plant in Oxfordshire and Wiltshire.

SCILLA, Linn. Gen. n. 378.

[**S. AUTUMNALIS**, Linn. Sp. Pl. 309 (1753). *Autumnal Squill*.

Syme, E. B. ix. 198, t. 1526. Formerly occurred near Kew in Surrey, and is found in the Isle of Wight and West Gloucestershire.]

S. festalis, Salisb. Prod. 242 (1796). *Blue Bell, Wild Hyacinth*.

S. nonscripta, Link. et Hoff. in der Gesell. Nat. Fr. zu Berl. neue Schr. 4 (1803) 19. *S. nutans*, Sm. Fl. Brit. i. 366, and E. B. t. 377. *Hyacinthus Non-scriptus*, Linn. Sp. Pl. 316 (1753). *Endymion nutans*, Dumort. Fl. Belg. 140. *Agraphis nutans*, Link, Handb. 166.

Top. Bot. 403. Syme, E. B. ix. 200, t. 1528. Nyman, 731. Fl. Oxf. 307. Native. Sylvestral. Woods, thickets, coppices, hedges, bushy heaths. Abundant and generally distributed. P. April-June.

First record. *Hyacinthus nonscriptus*, Harebell Hyacinth, *Mavor's Agr. Berks*, 1809. With *Puccinia Scillarum*, Grev. on it about Oxford, *Baxt. Phaen. Bot.* 74, 1834.

One of the chief adornments of our woodlands. Wytham Woods in the spring offer a most beautiful sight from the countless numbers of this favourite flower. Here indeed from its profusion it 'seems the heaven upbreking through the earth.' Tubney Wood, Ashampstead Common, Aldermaston, Windsor Forest, and Finchampstead also show it in great quantities. It is common on Ashley Hill on the London Clay at an altitude of 358 feet, and at Wytham up to 500 feet.

In the midst of the blue-flowered plants are to be seen occasionally a few white and pink-flowered forms; such have been noticed at Wytham, Tubney, Bagley, Unwell, Ashampstead, Kintbury, Binfield, and Windsor.

Var. *bracteata*, mihi. In this form the bracts are often so much developed as to considerably exceed the flowers; such have been noticed at Wytham, Appleton, Pusey, Idstone, Bagley, Wittenham, Ashridge, Catmore, Snelsmore, Ufton, Burghfield, Stubbing's Heath, Swallowfield, Windsor, &c. Mr. H. C. Watson found this variety constant in cultivation, see *Rep. of Exch. Club* (1869) 14.

The Blue Bell, dedicated to St. George, the patron saint of England, occurs in all the bordering counties.

ORNITHOGALUM, Linn. Gen. n. 377 (Tournefort, Inst. t. 203).

***O. NUTANS**, Linn. Sp. Pl. 308 (1753). *Drooping Star of Bethlehem*.

Myogalum nutans, Link, Handb. i. 164.

Comp. Cyb. Br. 582. Syme, E. B. ix. 194, t. 1523. Nyman, 728. Fl. Oxf. 307.

Alien. Rare. P. April. Coley Park, Reading, *Miss Vansittart*, 1881, in *Herb. Brit. Mus.*

Recorded as an introduced plant from Oxfordshire, Surrey, and Wiltshire.

O. umbellatum, Linn. Sp. Pl. 307 (1753). *Star of Bethlehem*, *Stars*.

Comp. Cyb. Br. 582. Syme, E. B. ix. 196, t. 1524. Nyman, 727. Fl. Oxf. 306.

Denizen or native. Pascual and pratal. Meadows, pastures, osier-holts, &c. Local and uncommon. P. May-June.

First recorded in *Mr. Britten's Contributions*, 1871.

1. **Isis**. Near Faringdon. Near Lechlade. In a field between Watchfield and Shrivenham near Penny Brook, in great quantity. The field in which it chiefly occurs is an upland meadow (183 feet bench mark) and is of considerable length. The *Ornithogalum* is very plentiful over the upper portion of it, and is locally called 'Stars.' There are no traces of buildings near, and the plant has the appearance of being indigenous. The villagers think it to be native. Specimens were distributed through the *Bot. Exch. Club*, 1892, by the author. I also found it in an adjoining field, but sparingly.
2. **Ook**. Two patches in meadows between Shillingford and Clifton Hampden Bridge, no cottage anywhere near, Berks, *T. H. Grose*, *M.A.* Besilsleigh, in the Park, but here evidently the remains of the old garden of Speaker Lenthall. On the Ridgeway near the White Horse, found by *Mr. W. W. Taylor* in 1896 on the 'Field day' of the Oxfordshire Nat. Hist. Society.
3. **Pang**. Marlstone. Bucklebury. Relics of cultivation.
4. **Kennet**. Near Kintbury.
5. **Loddon**. Islands on the Thames near Shiplake, *Tufnail*. At foot of Winter Hill and in Quarry Wood, *Britten*. Wellington Coll. brickfield, *Penny*. Remenham Lane, *Stubbs in Britt. Contr.* Park Place, near the river, *Stanton*. Well naturalized near Victoria Bridge, Windsor, *Bolton King*.

As a doubtful native or as an introduced plant *O. umbellatum* is found in all the bordering counties.

O. pyrenaicum, Linn. Sp. Pl. 306 (1753). *Spiked Bethlehem Star*.

Top. Bot. 402. Syme, E. B. ix. 197, t. 1525. Nyman, 727. Fl. Oxf. 307.

Native. Sylvestral. Woods. One of our most local species. P. Aug. First record. *O. pyrenaicum*, *Spiked Bethlehem Star*, Dr. Lamb, in *Mavor's Agr. Berks*, 1809.

3. **Pang**. Near Langley, *Dr. Lamb*. Plentiful in Ashridge Wood, Ilsley. In the woods between Compton and Hampstead Norris, *Lousley in Russell's Cat.* 1839. On the banks by the side of Greenham and in the last year's cuttings in Ashridge, also in Compton Wood, *W. Hewett*, 1838. East Ilsley, abundant in woods,

W. W. R[eeves], in *Phyt. n. s. iv.* (1860) 270. Specimens from Ashridge Wood, where it is still abundant, were sent by the author to *Bot. Exch. Club*. See *Report*, 347, 1891.

4. **Kennet.** Near Hungerford, *Reeks*. In a hedgerow and by the border of a copse at the base of Gibbet Hill. Bagshot.

O. pyrenaicum is almost confined to a small area in the Pang district. The leaves have quite withered by the time the plant is in flower, which would appear to make it belong to *O. sulfureum*, Roem. et Schult.

O. pyrenaicum is only recorded as a native plant from Wilts of the counties bordering on Berkshire.

***Lilium Martagon**, Linn. Sp. Pl. 303 (1753). *Turk's Cap*.

Martagon imperiale, Park. Par. 28.

Comp. Cyb. Br. 580. Syme, E. B. ix. 187, t. 1518. Nyman, 721. Fl. Oxf. 305.

Denizen. Sylvestral. Very local. P. June-July. Plantations. First recorded in this Flora.

2. **Ock.** Near Kingston Bagpuze in great quantity, completely naturalized.

3. **Pang.** About the ponds near Bucklebury House, doubtless the remains of cultivation, but now in a semi-naturalized condition.

L. Martagon is recorded for Oxford, Surrey, and Gloucestershire; in the latter county it has the appearance of a native plant.

FRITILLARIA, Linn. Gen. n. 372 (Tournefort, Inst. t. 201).

F. Meleagris, Linn. Sp. Pl. 304 (1753). *Fritillary, Snake's-head*.

Fritillaria variegata, Ger. Em. 149. *Flos Meleagris*, Lobel.

Top. Bot. 399. Syme, E. B. ix. 188, t. 1519. Nyman, 721. Baxt. t. 1. Fl. Oxf.

Native. Pratal. Wet meadows. Locally abundant. P. April-May. First recorded by Mr. Murray in *Sm. E. B. t. 622*, 1799.

1. **Isis.** Near Eynsham [? on Oxfordshire side of river], *M. Arnold*. Near Coleshill by the Cole; there called Wild Tulip.

2. **Ock.** Between Oxford and Kennington, *Baxter*. It varies with white flowers, and sometimes with two flowers on one stem. Both these varieties, as well as others of different shades of purple, are common about Oxford, *Baxter*. In a meadow called Thorncroft, Blewbury, *Lousley in Russell's Cat*. The meadow is called Horsecroft in *Hencett's Hist*. Sandford, *Dyer*. Very abundant in the meadows from Iffley to Kennington, and it is from these fields that the great quantity of specimens are brought into Oxford.

4. **Kennet.** Near Reading, *Murray, l.c.*, and in *Sm. Fl. Brit. 360*. Meadows about Burghfield, near Reading, *Fardon in Bot. Guide*. A white variety, *Mr. Deane* of Reading, *Mavor's Agr. Berks*.

Burghfield Bridge, *Lousley*; also *Miss Vansittart*, 1881, in *Brit. Mus. Herb.* Near Theale in the Kennet meadows.

5. Loddon. Maidenhead Thicket, *Miss Lucas*. In the meadows about the Loddon and the St. Patrick's stream; in the spring-time the beautiful Fritillary or Snake's-head can be seen growing in great abundance, *G. D. Leslie* in *Our River*. About Boulney and below Hemerton, *Stanton*. Arborfield meadows, *Taylor*.

The purple Fritillaries, which every Oxford man has gathered by handfuls in the spongy meadows about Iffley Lock, with their dark-spotted petals converging into a bell, and the nectaries at the base producing each a drop of luscious honey. *Grant Allen* in *Macmillan's Mag.* xlvii. (1883) 33.

I know what white, what purple, Fritillaries
The grassy harvest of the river fields
Above by Eynsham, down by Sandford, yields,
And what sedged brooks are Thames' tributaries.

Matthew Arnold, Thyrsis.

Some idea of the abundance of the Fritillary near Oxford may be gathered from the fact given me by Mr. J. G. Baker, that one year Prof. Lawson sent to Kew 3,000 specimens for use at the Science and Art Examinations of South Kensington.

The Fritillary appears to have been first noticed as a British plant by Mr. Ashby in Blackstone's list of Harefield plants of 1737. It is somewhat curious that it should not have been recorded from Oxford before the date of 1770-1780, when Dr. Lightfoot made a note of gathering it in Magdalen College Meadow. This would rather point to its being an introduced species. In favour of its being a native plant is the fact that it also occurs in the meadows of the Thames and its tributaries far up the stream in very sequestered country, as for instance in meadows by the Cole and Windrush. This would rather lead us to think that the plant was native towards the top of the watershed, and that by floods, &c., it has been conveyed to the lower portion of the Thames valley. But bearing in mind that it occurs in the valleys of the Thame and Kennet, which are separate branches of the main river, I have called it a native plant.

F. Me'eagris is recorded for all the bordering counties except E. Gloucestershire.

TULIPA, Linn. Gen. n. 376 (Tournefort, Inst. t. 199).

**T. SYLVESTRIS*, Linn. Sp. Pl. 305 (1753).

Wild Tulip.

Comp. Cyb. Br. 581. Syme, E. B. ix. 190, t. 1520. Nyman, 723. Fl. Oxf. 306. Denizen. Plantations, parks, orchards. Rare. P. May-June. First recorded by Miss Hoskins in *Bart. Phaen. Bot.* 2, 1834.

2. Ock. Besilsleigh, *Miss Hoskins, l.c.* [A relic of Speaker Lenthall's Garden, where it is still plentiful, but rarely flowers.] Boar's Hill, *Bolton King*. [Its claims to being indigenous are negated by the fact that a double-flowered *Narcissus* grew near.] Marcham, *Walker*. Near Kennington, but only the remains of a cottage garden.
3. Pang. In Marlstone Park, *Weaver*. I saw it in flower in 1892. *Mr. Lousley* knew of this locality. Bucklebury.
4. Kennet. In a wood near Kintbury, *Mrs. Batson*.

Tulipa is recorded as a more or less naturalized plant in all the bordering counties except E. Gloucestershire.

GAGEA, Salisb. ap. Koenig et Sims Ann. Bot. ii. (1806) 555.

G. fascicularis, Salisb. l. c. *Yellow Star of Bethlehem.*

G. lutea, Ker-Gawl. in Bot. Mag. t. 1200 (1809). *Ornithogalum luteum*, Linn. Sp. Pl. 306 (1753), and of Gerard.

Top. Bot. 402. Syme, E. B. ix. 193, t. 1522. Nyman, 725. Fl. Oxf. 306.

Native. Sylvestral. Woods. Very rare. P. March–April.

First record. *Ornithogalum luteum*. In Merley Wood, near Oxford, Dr. Lightfoot's MSS. 17 o. In woods about Oxford, E. B. t. 21, 1791.

1. **Isis**. Merley Wood, Lightfoot. Cumnor Hurst, Rev. T. O. Marshall, Journ. Bot. ix. (1871) 147, and Rev. E. F. Linton, 1875, in Rep. of Bot. Rec. Club. [The remark of the editor, Mr. T. R. Briggs, that the plant 'is possibly not indigenous at Cumnor,' is without foundation. The plant is native there.]

2. **Ock**. Near Childswell Farm, 1883. I have not seen it recently.

4. **Kennet**. Inkpen, near Newbury, 1841, W. Hewett. The locality may be in Hampshire, but Mr. Bicheno recorded it as from Berkshire. *Gagea* is recorded for Oxfordshire, Hants, Wilts, and Gloucestershire.

COLCHICUM, Linn. Gen. n. 415 (Tournefort, Inst. tt. 181–2).

C. autumnale, Linn. Sp. Pl. 341 (1753). *Meadow Saffron.*

Top. Bot. 407. Syme, E. B. ix. 225, t. 1544. Nyman, 743. Fl. Oxf. 309.

Native. Pratal, sylvestral. Damp woods, meadows, thickets; evinces a preference for calcareous, chalky, or clayey soil. Very local. P. August–September.

First record. *C. autumnale*, Mr. Bicheno, in Mavor's Agr. Berks, 1809.

1. **Isis**. Cumnor, Newton Young, in Walk. Fl. Near Appleton, Newton Young. Eaton Stibble, Barrett, in Baxt. Phaen. Bot. 17. Near Eynsham, Miss Swann. Near Appleton Common.

2. **Ock**. Marcham, Walker. Copse near Childswell Farm, F. T. Richard. Meadows near Wittenham, Bellamy. Between Tubney and Appleton. Near Bagley Wood, very rare.

3. **Pang**. In Ashridge Wood, East Ilsley. In a hedge near Hatch Gate. Hampstead Norris, not common, Lousley in Russell's Cat. 1839. Woolvers, Hewett's Hist.

4. **Kennet**. Hungerford Park water meadows, Miss Morrice. Near Wickham, Mrs. Batson. Near Inkpen.

Colchicum is recorded from all the bordering counties.

NARTHECIUM, Huds. Fl. Angl. 127 (1762).

N. ossifragum, Huds. l. c. 128. *Lancashire Asphodel.*

Anthericum ossifragum, Linn. Sp. Pl. 311 (1753).

Top. Bot. 403. Syme, E. B. ix. 222, t. 1542. Nyman, 745. Fl. Oxf. 309.

Native. Uliginal. Bogs and peaty places. Locally common, but restricted to the southern side of the county. P. June–August.

First record. *Asphodelus Lancastriae*. Lancashire Asphodill. Thomas Edwards . . . found this Asphodill at the foote of a hill in the west part of England, called Bagshot hill, neere vnto a village of the same name, *Gerard's Herbal*, 89, 1597. [The locality may have been in Surrey, but the plant occurs on Bagshot Heath in Berkshire.] *Narthecium ossifragum*, Mr. Bicheno, *Mavor's Agr. Berks*, 1809.

2. Ock. On Wootton Bogs, first found by Lord Webb Seymour, and seen for several years. Since destroyed by enclosure, *Dr. Williams' MS.*

3. Pang. Cold Ash Common.

4. Kennet. Snelsmore and Woodhay Commons, *Bunny in Russell's Cat.* Bogs on Greenham Common, *Bicheno, l. c.* Newtown Common, *Stubbs in Britt. Contr.* Wickham, *Mrs. Batson.* Burghfield Common, *Rev. A. Bird in Buxt. Phaen. Bot.* Inkpen Common, *Hewett. Mortimer, Tufnail.*

5. Loddon. Bagshot Heath, *Gerard.* In great plenty at Sunningwells upon the peat bogs, 1762, and at Virginia Water, *Lightfoot MS.* Bulmarsh Heath, *Rudge, 1800, in Herb. Brit. Mus.* See also *Bot. Guide*, 1805. Ascot, *Wilkin.* Windsor Great Park, *Bot. Guide.* Warren Row, *Stanton.* [I could not see it here.] Wellington College, *Penny.* Abundant near Sandhurst. Broadmoor. Owls Moor. Easthampstead Plain. Finchampstead Ridges, near Spout Pond. Long Moor. Abundant near Ascot Station by the railway. Whitemoor Bog. Near Wellington College Station.

The flowers have a faint odour of the clove pink.

As will be seen, *Narthecium* no longer exists in the Isis, Ock, nor probably in the Pang districts, and is confined in the Kennet and Loddon districts to the area of boggy heaths chiefly situated on the Bagshot Sands.

N. ossifragum (spelt *Ossifragum* by Hudson) is absent from Oxfordshire, and is not recorded for E. Gloucestershire.

PARIS, Linn. Gen. n. 449 (Rüppius).

P. quadrifolia, Linn. Sp. Pl. 367 (1753). *Herb Paris, True Love, One Berry.*

Top. Bot. 406. Syme, E. B. ix. 173, t. 1509. Nyman, 717. Fl. Oxf. 304. Native. Sylvestral. Damp woods. Very local. P. May-June.

First record. *Herba Paris.* It grows in Merley Wood, *MS. in Lyte's Herbal*, 1660. *P. quadrifolia*, Mr. Bicheno, *Mavor's Agr. Berks*, 1809.

1. Isis. Merley Wood, *MS. in Lyte and Sir J. Banks.* Wytham Wood, *Baxter, in Furt. Midl. Fl.* Still plentiful there, and plants bearing three, five, six, and seven leaves have been noticed in addition to those having the normal number of four.

2. Ock. White Horse Hill, *Bolton King in Herb. Miss C. E. Palmer.*

3. **Pang.** Compton Wood, *Heacett's Hist.* In a wood between South-ridge Farm and the Grotto, Basildon, *Lousley in Russell's Cat.* 1839.
4. **Kennet.** Near Hampstead Marshall, *Tooner in Russell's Cat.* Coppice below Greenham Chapel, *Bicheno.* West Woodhay, *Reeks.* Sandleford Woods, *Weaver.* Abundant in Riever Wood. *Paris* is scattered through the bordering counties.

JUNCACEAE, Dumort. Comm. Bot. 66 (1822).

Juncaceae, Vent. Tabl. 2, 150 (1799).**JUNCUS**, Linn. Gen. n. 396 (Tournefort, Inst. t. 127).

- J. bufonius**, Linn. Sp. Pl. 328 (1753), and Herb. *Toad Rush.*
 Top. Bot. 433. Syme, E. B. x. 34, t. 1572. Nyman, 749. Fl. Oxf. 312.
 Native. Paludal, &c. Moist woods, pond-sides, heaths, especially fond of situations where water has stood. Common and widely distributed except on the bare chalk. A. June–August.
 First record. Near Oxford, *Sir Joseph Banks*, 1760, and Sonning, *Mr. S. Rudge in Herb. Brit. Mus.* 1800. Published as *J. bufonius*, Dr. Noehden, in *Mavor's Agr. Berks*, 1809.

J. bufonius is a variable plant. Among the principal forms found in the county are—

Var. **FASCICULATUS**, Koch, Syn. Fl. Germ. 732 (1837). See Syme, E. B. t. 1573 = *J. mutabilis*, Savi, Fl. Pis. i. 364, a form with the flowers in fascicles of two or three, with shorter and stouter stem, and with more divaricate panicle branches than the ordinary form, has been noticed at Mortimer by Mr. Tufnail, and I have seen it at Greenham, Snelsmore, Burghfield, Sandhurst, Theale, &c.; but intermediate forms between this and the next variety are more frequent.

Var. **RANARIUS** (Nees in Linnaea, xx. (1847) 243, as a species), with sub-solitary flowers and shorter perianth leaves, has been seen on the Brewery Common, Mortimer, by Mr. Tufnail; it occurs also at Bracknell, Broadmoor, &c.

J. bufonius is found plentifully in all the bordering counties.

- J. squarrosus**, Linn. Sp. Pl. 327 (1753) and Herb. *Heath Rush*, *Moss Rush.*
 Top. Bot. 434. Syme, E. B. x. 38, t. 1576. Nyman, 748. Fl. Oxf. 312.
 Native. Ericetal. Heaths. Rare or absent from the north of the county, and not an abundant rush even in the southern heathly district. P. May–August.

First record. *J. squarrosus*, Dr. Noehden, *Mavor's Agr. Berks*, 1809.

3. **Pang.** Near Beedon, *W. M. Rogers.* Bucklebury Common, *Tufnail.* Cold Ash Common. Oare Common.
4. **Kennet.** Newbury, *Russell's Cat.* 1839. Greenham Common.

Mortimer. Burghfield. Aldermaston. Ufton. Lower Bucklebury Common. Snelsmore Common.

5. **Loddon.** Ascot, *Wilkin*. Bulmarsh, *Tufnail*. Between Warren Row and Knowl Hill, *Stanton*. Wellington College. Sandhurst. Ambarrow. Bearwood. Long Moor. Finchampstead. Sunningdale. Sunninghill. Whitemoor Bog. Bagshot Heath. Risely. Early Heath. Windsor Great Park.

J. squarrosus is recorded for all the bordering counties except E. Gloucestershire, but in Oxfordshire it is almost if not quite extinct.

[*J. biglumis* of the Wellington Coll. list, 1894, is of course an error.]

J. compressus, Jacq. Enum. Stirp. Vind. 60 and 235 (1762).

J. bulbosus, Linn. Herb. (not of Sp. Pl. ed. 1) and Sm. E. B. t. 934.

Linn. Sp. Pl. ed. 2, 466 (1762).

Top. Bot. 433. Syme, E. B. x. 37, t. 1575. Nyman, 748.

Native. Paludal. Marshy meadows. Local and not common. P. June–August.

First record. *J. bulbosus*. By the Long Walk, Windsor, Dr. Goodenough in *Sm. Fl. Brit.* 1800. See also E. B. t. 934, and the author in *Rep. Bot. Rec. Club*, 1881.

1. **Isis.** Near Bablock Hythe, *Walker*. Near Botley.
2. **Ock.** Marcham, *Walker* (? *Gerardi*). South Hinksey. Grandpont, *Boswell*. Happy Valley, *Druce*, *Rep. of Bot. Rec. Club*. Marshy meadows, South Hinksey. Near Ferry Hinksey. Near Kennington. Near Marcham. Near Abingdon. Abingdon Racecourse. Foot of Boar's Hill, below the 'Fox,' by the roadside.
4. **Kennet.** Thames side, King's Meadows, near mouth of Kennet, *Tufnail*.
5. **Loddon.** By the Long Walk, Windsor, *Goodenough*, *l.c.* Plentiful by the pond near Shottesbrooke Church. In the meadows at Old Windsor.

In the young state it bears much resemblance to *J. tenuis*, Willd.; in fact, when I first saw the Shottesbrooke plant in its early condition, I thought it might be *J. tenuis*. On a second visit the plant had been either mowed down or bitten off by cattle, so a third visit in the following year had to be made, when it was gathered in good condition as normal *J. compressus*.

J. compressus is recorded for all the bordering counties except Bucks and Wilts.

J. Gerardi, Loisel. in Desv. Journ. de Bot. ii. (1809) 284.

J. coenosus, Bich. in Linn. Soc. Trans. xii. (1819) 309. *J. bulbosus*, var. *Gerardi*, auct. var.

Top. Bot. 433. Syme, E. B. x. 37, t. 1574. Nyman, 749. Journ. Bot. (1889) 49–50.

Native. Pratal. Marshy meadows. Very local. P. May–June.

First found in Berkshire by the author in 1892.

2. *Ock*. In the saline meadow at Marcham with other semi-maritime plants.

Professor Buchenau accepts the name, but states that the inner perianth leaves are broader than usual.

The longer style appears to be a good character by which it may be distinguished from *J. compressus*; the outer perianth leaves are also darker in colour.

I am not aware of its being found in any inland locality in any of the bordering counties except E. Gloucestershire, if that is correctly reported.

J. glaucus, Ehrh. Beitr. vi. (1791) 83, and Sibth. Fl. Oxf. 113 (1794).
Hard Rush.

J. inflexus, Linn. Sp. Pl. 326 (and Huds. and With.), the earliest name. *J. acutus*, Gerard, 31, not of Linn.

Top. Bot. 430. Syme, E. B. x. 25, t. 1563. Nyman, 746. Fl. Oxf. 310. Native. Paludal. Wet meadows, roadsides, commons, especially addicted to stiff clay soils. P. June-July.

First record. Sonning, *Mr. S. Rudge in Herb. Brit. Mus.* 1800. [Omitted from *Mavor's Agr. Berks*, 1809.]

Plentiful in low-lying situations in all the districts, and often marking the juncture of a pervious with an impervious stratum. My friend, the Rev. W. M. Rogers, tells me he only saw it at Catmore during his residence at Peasemore, and it is indeed absent from considerable areas of the upper chalk formation; but as that becomes obscured or covered with tertiary formations, which include the London Clay, then the Hard Rush makes its appearance. It is therefore most plentiful in the Isis district on the Oxford Clay, in the Ock district on the Kimeridge Clay, local in the Pang and Kennet districts, but frequent on the London Clay in the Loddon district.

It was found as a large form, three feet high with stems twice the usual thickness and with paler leaf sheaths, by a pond in Wytham, but the pith was interrupted, the stems glaucous and deeply striate, and the seeds normal, so that it is not a hybrid, but probably only a form caused by permanent moisture and shade. See *Rep. of Bot. Exch. Club*, 1892.

The name *J. inflexus* has strong claims for adoption, if actual priority be enforced, and it may have to be used; but I have followed Buchenau in retaining the well-known name of *J. glaucus*, about the meaning of which there has been no confusion.

J. glaucus is found in all the bordering counties.

× **J. diffusus**, Hoppe, Decad. Gram. n. 155, and in Flora i. (1819) 186.

J. glauco-effusus, Schnitz. u. Frick. Veget. Verhl. 200. *J. effusus* × *glaucus*, Buchen. in Engl. Bot. Jahrb. (1886) 162.

Top. Bot. 430. Syme, E. B. x. 24, t. 1562. Nyman, 746. Fl. Oxf. 310. Native. Paludal. Wet roadsides, marshes. Rare. P. July–August. First record. Mr. H. Boswell in 1861 in *Herb. Brit. Mus.*

2. *Ock*. Childswell Farm, *Boswell*, l. c.

5. Loddon. Near Loddon Bridge, by a roadside with *J. glaucus* and *J. effusus*.

J. diffusus is recorded for all the bordering counties except Bucks. I have little doubt that it is a hybrid of the two species mentioned. See a note by the author in *Journ. Bot.* (1884) 348, and *Fl. Oxf.* 310.

J. effusus, var. *b*, Linn. Sp. Pl. 326 (1753) and Fl. Suec. ed. 2, 111 (1755). *Soft Rush*.

J. laevis, Gerard, 30.

Top. Bot. 430. Syme, E. B. x. 21, t. 1561. Nyman, 746. Fl. Oxf. 310. Native. Paludal. Marshes, wet ditches, moist heaths, roadsides, woods, &c. Common and generally distributed except in cultivated land and chalk downs. P. June–August.

First record. Near Oxford, *Sir Jos. Banks*, 1760, and Sonning, *Mr. S. Rudge* in *Herb. Brit. Mus.* 1800. Published in *Mavor's Agr. Berks*, 1809.

J. effusus is found in all the bordering counties.

J. conglomeratus, Linn. Sp. Pl. 326 (1753). *Clustered Rush*.

J. laevis vulgaris, *panicula compactiore*, Ray, Syn. 273. *J. Leersii*, Th. Fr. Marsson, Fl. Neu-Vorpomm. 451 (1869).

Top. Bot. 430. Syme, E. B. x. 20, t. 1560. Nyman, 746. Fl. Oxf. 310. Native. Paludal. Wet fields, ditches, heaths, and marshy places. Common and generally distributed over the uncultivated portions of Berkshire. P. May–August.

First record. Near Oxford, *Sir Joseph Banks*, 1760, and Sonning, *Mr. S. Rudge*, in *Herb. Brit. Mus.* 1800. Published as *J. conglomeratus*, Dr. Noehden, *Mavor's Agr. Berks*, 1809.

J. conglomeratus is found in all the bordering counties.

The stem of this and the preceding species, when divested of the green portion, formed the wick of the old rush-lights—an industry not quite extinct; the white pith is also twisted into ornaments by vagrants.

The chief difference between it and *J. effusus* is to be found in the capsule, which in this species is mucronate, and the capsule has a depression, and not a small protuberance, in the centre; the striae on the stem are distinctly rugulose; in *J. effusus* the stem is usually smoother and softer, and of a paler green. They are kept distinct by Buchenau, although made synonymous in the *Index Kewensis*. Buchenau's Monograph of the European *Juncaceae* will be found in *Engler's Botanische Jahrbücher* (1886), 153–176.

J. bulbosus, Linn. Sp. Pl. 327 (1753), not of Herb. or Sp. Pl. ed. 2. *Lesser Jointed Rush*.

J. supinus, Moench, Enum. Pl. Hass. i. 167 (1777), not of Bicheno.

Top. Bot. 432. Syme, E. B. x. 32, t. 1570. Nyman, 748. Fl. Oxf. 311.

Native. Uliginal. Moist heaths, boggy places, ditches, and ponds in heathy situations. Locally abundant. P. June–August.

First record. *Juncus bulbosus* [a var. of 434, 11, of Ray, Syn. 1724] grows in great plenty in the Peat bog near Sunning-hill in Berkshire, Dr. Lightfoot's MSS. 1780. Near Oxford, Sir Joseph Banks, 1760, and Bulmarsh Heath, Mr. S. Rudge, 1800, in Herb. Brit. Mus. Published as *J. uliginosus*, Snelsmore Common, Russell's Cat. 1839.

1. Isis. Wytham.
2. Ock. Bagley Wood, Baxter, 1840, in Herb. Oxf. Near the Rifle Range on Boar's Hill. Cothill.
3. Pang. Petty's Wood, Tidmarsh, Tufnail. Bucklebury. Oare Common. Cold Ash Common. Fence Wood.
4. Kennet. Snelsmore Common, Russell, l.c. Greenham. Burghfield. Mortimer. Aldermaston. Padworth. Ufton. Hampstead Marshall. Inkpen. Wickham, &c. Common in the south of the district.
5. Loddon. Bulmarsh Heath, Rudge. Cookham Dean, Mill. Warren Row, Stanton. Sunninghill, Lightfoot. Bracknell. Wokingham. Ascot. Long Moor. Sandhurst. Ambarrow. Finchampstead. Easthampstead. Windsor Great Park and Virginia Water. Very abundant in a pond on the south side of the road about a mile east of Wellington College Station. Common and generally distributed over the district covered with the Bagshot Sands, also on Pinkney's Green.

J. bulbosus is a polymorphic species. There is an immense range of form exhibited in its various states. At one end of the series we have what we may consider the type in an erect, short-stemmed plant, which is often swollen at the base; this is the *Juncus supinus*, var. *nodosus*, Lange, Pl. Exs. n. 144 (1860); it occurs in dry heathy ground, as at Bracknell, Mortimer, Sandhurst, Aldermaston, &c. A second form is one which is rather frequently found by the margins of peaty pools into which the plant extends in a floating condition, and is usually viviparous; this is the var. *VIVIPARUS* (Sibth. Fl. Oxon. 115, as a var. of *J. uliginosus*), and is rather frequent over the heathy tract, as at Snelsmore, Sandhurst, Aldermaston, Burghfield, Mortimer, Easthampstead, Bracknell, Windsor Park, &c. A third form, with a creeping rooting stem, is var. *ULIGINOSUS* (Fries, as a var. of *J. supinus*), and is also frequently found in a viviparous condition; it occurs in the heathy districts, as at Long Moor, Sandhurst, Sunningdale, Mortimer, &c.

The extreme form, *J. fluitans*, Lam. Enc. Meth. iii. 271 (1789), figured in *Fl. Batava*, xviii. t. 1477, is not found in its most typical form in Berkshire—at least not in that finely drawn out state in which it occurs in some of the Scotch and Irish streams; but plants which

may be included under this name have been noticed at Sandhurst, Finchampstead, &c.

Var. *Kochii* (F. W. Schultz, in *Pollichia*, 13 (1855) 32), which has six stamens, and is the only variety of *J. bulbosus* admitted by Buchenau, I have only seen near Sandhurst.

The distribution of *J. bulbosus* is exactly the reverse of *J. glaucus*, as it is almost absent from the Isis, and rare in the Ock district.

J. bulbosus occurs in all the bordering counties.

J. articulatus, Linn. Sp. Pl. 327 (1753) teste Beck, Fl. Nied.-Oesterr. and Richter, Pl. Europeae.

J. lamp(r)ocarpus, Ehrh. Cal. 126 (nomen herb. solum). *J. articulatus*, var. *b*, Linn. Sp. Pl. 465 (1762).

Top. Bot. 431. Syme, E. B. x. 30, t. 1568. Nyman, 747. Fl. Oxf. 311. Native. Uliginal. Wet meadows, pond-sides, ditches, wet heaths, &c. Common in all the districts. P. June-September.

First record. *J. articulatus*, Dr. Noehden, *Mavor's Agr. Berks*, 1809. (In an aggregate sense.) See also *Mr. Baxter's MSS.* 1823. Published as *J. lamprocarpus* in *Russell's Cat.* 1839.

It is common in all the districts and is occasionally viviparous, as by the side of Virginia Water, at Sandhurst, Snelsmore, Wytham, Burghfield Common, &c.

Sometimes a floating state is found along the margins of ponds which appears to be the var. *fluitans* (Koch, Syn. Fl. Germ. 730 (1837), as a var. of *J. lamprocarpus*).

On the gravelly soil at Theale near the railway it occurred in a more erect form with darker and more prominent fruit, and approaches the var. *nigritellus*.

J. articulatus is found in all the bordering counties.

J. obtusiflorus, Ehrh. Beitr. vi. (1791) 83.

Top. Bot. 432. Syme, E. B. x. 28, t. 1566. Nyman, 747. Fl. Oxf. 311. Native. Uliginal. Marshes, wet bogs, and sides of canals. Very local.

P. July-September.

First record. *J. obtusiflorus*, Cold Ash, *Russell's Cat.* 1839.

1. **Isis.** Wytham Wood.

2. **Ock.** South Hinksey, *Lawson in Herb. Oxf.* Bagley Wood. Ferry Hinksey. Near Childswell Farm (recently destroyed). In the Rifle Butts on Boar's Hill, very fine. Abundant at Cothill and at Frilford. Near Tubney. Near Marcham. Powder Hill Copse. Near Abingdon. Luxuriant specimens by the canal between Abingdon and Marcham. In marshes between Cothill and Abingdon.

3. **Pang.** Cold Ash Common, *Russell's Cat.* Fence Wood, very fine specimens.

4. Kennet. Ufton.

In the Happy Valley near Oxford it occurred with much browner perianths than usual; it is possible there may be a strain of *J. sylvaticus* in the specimens.

J. obtusiflorus is recorded for all the bordering counties except Bucks.

J. sylvaticus, Reich. Fl. Moeno.-Francof. ii. 181 (1778).

J. acutiflorus, Ehrh. Beitr. vi. 82 (1791). *J. nemorosus*, Sibth. Fl. Oxf. 114 (1794). *J. articulatus*, var. γ , Linn. Sp. Pl. 327 (1753).

Top. Bot. 431. Syme, E. B. x. 29, t. 1567. Nyman, 747. Fl. Oxf. 311. Native. Sylvestral. Moist woods, wet meadows, ditches, &c., in heathy districts. Occurs in all the districts, but much less frequently in the greater part of the northern area than *J. articulatus*, but is a common plant in the damp heathy woods on the Bagshot Sands and London Clay. P. July-September.

First record. Bulmarsh Heath, Mr. S. Rudge in Herb. Brit. Mus. 1800. *J. acutiflorus*, Pond in the common field near Bisham Wood, Mr. G. G. Mill in Phyt. i. 992, 1843.

Var. **MACROCEPHALUS**, Koch, Syn. Fl. Germ. 729 (1837) = *J. acutiflorus*, var. *multiflorus*, Weihe, Graes. n. 92 (1833). A luxuriant form from the vicinity of Broadmoor, Bagshot Heath, and Finchampstead.

Var. **PALLESCENS**, Koch, l. c., is a plant with pale-coloured perianth segments found in shady woods, as at Aldermaston, &c.

Viviparous specimens have been noticed at Mortimer.

J. sylvaticus is recorded for all the bordering counties.

JUNCOIDES, Adans. Fam. ii. 47 (1763).

Luzula, DC. Fl. Fr. 111, 158 (1805). *Juncodes*, O. Kuntze, Rev. Gen. ii. 722.

J. Forsteri (Kuntze, l. c. sub *Juncodes*).

L. Forsteri, DC. Syn. Pl. Fl. Gall. 150 (1806). *Juncus Forsteri*, Sm. E. B. t. 1293. Fl. Br. iii. 1395. *Luciola Forsteri*, Sm. Engl. Fl. ii. 179 (1824).

Top. Bot. 435. Syme, E. B. x. 4, t. 1547. Nyman, 752. Fl. Oxf. 313. Native. Sylvestral. Dry woods. Local and rather rare. P. April-May.

First record. *Juncus Forsteri*. Mr. W. F. Drake in Linn. Soc. Trans. 359, 1804, in Bot. Guide, 1805, and in Mavor's Agr. Berks, 1809.

3. Pang. Streatley. Heath Wood. Dark Lane Copse. Unwell Wood.

4. Kennet. [Near Elcot] Reeks.

5. Loddon. In a wood of Sir W. East between Hall Place and Harley-Ford by W. F. Drake, l. c. as *Luzula Forsteri*. Bisham Wood, &c., Mill. Windsor Park, Bolton King. Ashley Hill. Hurley. Quarry Wood.

J. Forsteri is recorded for all the bordering counties except Wiltshire.

Mr. Briggs, in the *Flora of Plymouth*, points out that a growing plant of *J. Forsteri* can be distinguished at a glance, especially in fruit, as all the capsules on a panicle drop in one direction, whereas those of *J. pilosum* spread in all directions.

J. pilosum, Morong in Mem. Torrey Bot. Club, v. (1893-4) 108.
Small Hairy Wood Rush.

Luzula pilosa, Willd. Enum. Hort. Berol. 393 (1809). *Luciola pilosa*, Sm. Engl. Fl. ii. 178 (1824). *Juncus pilosus*, var. a, Linn. Sp. Pl. 329 (1753). *Luzula vernalis*, DC. Fl. Fr. iii. 160 (1805).

Top. Bot. 435. Syme, E. B. x. 5, t. 1548. Nyman, 752. Fl. Oxf. 313. Native. Sylvestral. Woods and thickets. Rather common, widely distributed, and too frequent to need a list of localities. P. March-May.

First record. *Luzula pilosa*, Mr. G. G. Mill in Phyt. i. 993, 1843.

I have found the var. BORRERI (Bromf. Fl. Vect. 517 as a species), in Quarry Wood.

Dr. Buchenau considers this to be a form with luxuriant leaves and immature or abortive seeds, and does not suggest a hybrid origin for it. It has been reported from Ireland, from which *J. Forsteri* is absent or not recorded.

J. pilosum is found in all the bordering counties.

J. sylvaticum (Kuntze, l. c. sub *Juncodes*). *Great Wood Rush.*

Luzula sylvatica, Gaud. Agr. Helv. ii. 240 (1811). *Juncus sylvaticus*, Huds. Fl. Angl. 132 (1762). *Luzula maxima*, DC. Fl. Fr. iii. 160 (1805). *Juncus pilosus*, Linn. Sp. Pl. p.p. 329 (1753).

Top. Bot. 434. Syme, E. B. x. 7, t. 1549. Nyman, 750. Fl. Oxf. 312. Native. Sylvestral. Woods, thickets, and heathy places. Local. Evincing a preference for a sandy soil. P. April-May.

First record. *Juncus maximus*, Dr. Noehden, *Mavor's Agr. Berks*, 1809.

1. **Isis**. Wytham.

2. **Ock**. Bagley Wood. Copse between Childswell Farm and Wootton Heath, *Baxter in Walk. Fl.* Denchworth, *Wait*. [I have not seen the plant. Not a likely district.] Letcombe Copse and in other copses on Boar's Hill.

3. **Pang**. Heath Wood.

4. **Kennet**. Weston, *Osmond*. Aldermaston. Burghfield. Mortimer. Upton. Hampstead Marshall.

5. **Loddon**. Near Park Place, *Stanton*. Windsor Great Park. Bracknell. Sunningdale. Swinley. Finchampstead. Bearwood.

My notes of this species for the Kennet and Loddon districts have been mislaid, so that the above localities are from memory.

J. sylvaticum is recorded for all the bordering counties.

J. campestre, Morong in Mem. Torrey Bot. Club, v. (1893-4) 108.
Field Rush.

Luzula campestris, DC. Fl. Fr. iii. 161 (1805). *Juncus campestris*, Linn.

Sp. Pl. 329. *Luciola campestris*, Sm. Engl. Fl. ii. 181 (1824).

Top. Bot. 435. Syme, E. B. x. 8, t. 1551. Nyman, 752. Fl. Oxf. 313. Native. Pascual. Fields, pastures, chalk downs, heaths. Common in all the districts. P. March-May.

First record. *Juncus campestris*. Near Oxford, Sir Joseph Banks, 1760, in *Herb. Brit. Mus.* Frequent, Dr. Noehden, in *Mavor's Agr. Berks*, 1809.

Two forms are given in Syme's *British Botany*, namely var. *umbellata* of *Luzula campestris*, in which the lower spikes are on elongated drooping peduncles, which appears to be the condition of the plant when it grows in somewhat sheltered situations and is not uncommon, and the var. *congesta*, Syme, of *L. campestris*, which has all the spikes sub-sessile. The var. *congestum* is not unfrequent on dry heathy ground, but the common form of our pasture fields is intermediate in character.

J. campestre, a pleasing feature in our pastures, its bright coloured anthers contrasting well with the dark perianth, is one of the earliest plants to greet the spring, and is found plentifully in all the bordering counties.

J. multiflorum.

Luzula multiflora, A. L. S. Lejeune. Flore Spa, 169 (1811). *Juncus campestris*, var. γ , Linn. Sp. Pl. ed. 2 (1762). *J. multiflorus*, Ehrh.

Cal. 127 ex Hoffm. Deutsch. Fl. i. 169 (1791). *Luzula erecta*, Desv.

Journ. de Bot. i. (1808) 156.

Top. Bot. 435. Syme, E. B. x. 9, t. 1550. Nyman, 752. Fl. Oxf. 313. Native. Ericetal. Damp heaths, commons, &c. Locally common.

P. May-June.

First record. *Luzula congesta*. Bagley Wood, Mr. Baxter in *Walker's Flora*, 1833, see also *Baxt. Phaen. Bot.* n. 379, 1840.

1. *Isis*. Wytham.

2. *Ock*. Bagley Wood, *Baxter*. Wootton. Frilford. Cothill. Tubney.

3. *Pang*. Tidmarsh, *Newbould*. Cold Ash Common. Oare Wood. Bucklebury.

4. *Kennet*. Near Beedon, *W. M. Rogers*. Burghfield. Mortimer. Aldermaston. Hampstead Marshall. Inkpen. Greenham. Snelsmore.

5. *Loddon*. At the top of Bisham Wood (*congesta*), *Müll.* Bulmarsh, *Tufnail*. Bagshot. Ascot. Sandhurst. Finchampstead. Long Moor. Bearwood. Bracknell. Sunningdale. Easthampstead. Windsor Park, &c.

Our more frequent bog and heath form is the var. *congestum* (*Luzula congesta*, DC. Fl. Fr. Supp. 305). The var. *umbellatum* is rather uncommon. I have seen it near Sandhurst, Aldermaston, &c., but many of our plants, especially in the heathy tract, appear to come best under var. *pallescens* (Bess. Enum. Pl. Volh. 15 (1822), as a species of

Luzula) = *Juncus campestris*, Linn. var. *b* = *J. pallescens*, Wahl. Fl. Lapp. 87 = *Luzula multiflora*, var. *pallescens*, Bluff. et Fingerh. Comp. Fl. Germ. i. 444 (1825), which occurs at Sunningdale, Ascot, Windsor Park, Sandhurst, &c. See the author in *Rep. of Bot. Exch. Club*, 1888.

J. multiflorum is recorded for all the bordering counties except E. Gloucestershire.

****J. NEMOROSUM**, Morong, l. c. var. **RUBELLUM**.

Luzula albida, DC. Fl. Fr. iii. 159, var. *rubella* (Hoppe, Dec. Gram. 68 as a species). *Juncus nemorosus*, var. *l*, Pollich, Hist. Pl. Pal. i. 352.

Reichb. Ic. Fl. Germ. ix. f. 854. Nym. 751.

Alien. Some plants were found in Wellington College grounds by Rev. C. W. Penny, and it has been recently gathered by Mr. Tufnail near Wellington College railway station. Mr. Tufnail thinks both the type and variety occur.

I have followed the American Check List in adopting the generic name *Juncoides*, which has distinct priority over *Luzula*, as is pointed out by Otto Kuntze in the *Rev. Gen. Pl.* ii. 722, in which he has altered the name to *Juncodes*. Since Bentham and Hooker admit the genus *Mniodes*, an equally faulty name, there does not appear to be a valid objection to the use of Adanson's name, which is therefore employed here.

TYPHACEAE, J. St. Hil. Exp. Fam. i. 60 (1805).

TYPHA, Linn. Gen. n. 924 (Tournefort, Inst. t. 301).

T. latifolia, Linn. Sp. Pl. 971 (1753). *Bulrush*, *Cat's Tail*, *Reed Mace*.

T. major, Curt. Fl. Lond. fasc. iii. t. 61. *Typha*, Gerard. *T. maxima*, Park. 1204.

Top. Bot. 429. Syme, E. B. ix. 2, t. 1385. Nyman, 757. Fl. Oxf. 315. Native. Paludal. Marshes, ponds, ditches, sides of rivers, preferring still or stagnant water. Rather common and widely distributed.

P. June-July.

First record. Ham Marsh, *Russell's Cat.* 1839.

1. **Isis**. Cumnor, now replacing *T. angustifolia* which once occurred there. Wytham, a very splendid growth in a pond on the southern side of the hill. Buckland. Buscot. Bourton.
2. **Ock**. Sandford, *Lawson in Oxford Herb.* Marcham, *Walker*. Wantage. In the pools left by the excavation of ballast by the railway between Stevenston and Challow. Dideot. Chawley. Radley. Kennington. Stevenston. Appleford. Boar's Hill.
3. **Pang**. Lake, Purley Hall. Tilehurst, in pools, *Tufnail*. By the Thames near Wallingford. Near Reading. Bradfield. Oare Hermitage. Bucklebury. At Pangbourn it is known by the name of Tottenham Flag.
4. **Kennet**. Theale. Ham Marsh, *Russell, l.c.* Southcote. Hampstead Marshall. Aldermaston. Sulhampstead. Mortimer. Burghfield Shaw. Newbury. Sandleford. Kintbury. Hungerford. Benham. Chilton Foliat, &c.

5. **Loddon.** Pond at the foot of Cookham Down, *Mill*. Wargrave, Stanton. Between Wellington Coll. and Blackwater Station, Penny. Wokingham. Shottesbrooke. Waltham. Ruscombe. Bearwood. Coleman's Moor. Easthampstead. Swinley. Binfield. Bray. Clewer. By the pond near Cumberland Lodge, Windsor Park. Frogmore, &c.

The plant has a great partiality for ponds in brickyards, and it soon occupies such a situation in a newly-opened place, to which the light, minute seeds doubtless are carried by the wind.

The var. *media*, ? *T. media* [Schleich. Exs. Cat. 59] in DC. Fl. Fr. vi. 302, has been found by Mr. J. C. Melvill on the Oxford side of the river near Wargrave.

In the sluggish water and mud banks near Boulney Court grow lofty plumes of reeds and reed mace seven or eight feet high, of quite a tropical character, *G. D. Leslie* in *Our River*.

T. latifolia is found in all the bordering counties.

T. angustifolia, Linn. Sp. Pl. 971 (1753). *Smaller Cat's Tail*.

T. minor, Park. 1204 and Curt. Fl. Lond. fasc. iii. t. 62.

Top. Bot. 429. Syme, E. B. ix. 4, t. 1386. Nyman, 757. Fl. Oxf. 316. Native. Paludal. Ponds and riversides. Rather local. P. June-July.

First record. At Cumnor, near Oxford, in a large old fish-pond, known there by the name of Lady Dudley's Pond, but which is now nearly filled up with moss, &c., and has become nothing more than a bog, plentifully, 1838, *Baxter*, *Phaen. Bot.* n. 377, 1840.

1. **Isis.** Cumnor, *Baxter*. Not there now, but *T. latifolia* is plentiful. Buscot Lake. Buckland Lake.

2. **Ock.** Between Sandford and Nuneham, with leaves nearly half an inch broad, *Baxter*. Near Radley. In the Abingdon meadows.

3. **Pang.** By the Thames, in two or three places, between Wallingford and Reading.

5. **Loddon.** Near Wellington College, *Tufnail*. Shinford Green. Easthampstead. By the Loddon. Abundant and very luxuriant in a pond near Cumberland Lodge in Windsor Park, perhaps the *T. elatior*, Boenn. Prod. Fl. Monast. 274.

Typha angustifolia is recorded for all the bordering counties except Bucks.

SPARGANIUM, Linn. Gen. n. 925 (Tournefort, Inst. t. 302).

S. erectum, Linn. Sp. Pl. 971 (1753). *Great Bur Reed*.

S. ramosum, Huds. Fl. Angl. ed. 2, 401 (1778), and of C. B. Pin. 15.

Top. Bot. 429. Syme, E. B. ix. 5, t. 1387. Nyman, 757. Curt. Fl. Lond. fasc. v. t. 66. Fl. Oxf. 316.

Native. Paludal. Sides of rivers, brooks, ponds, and canals. The aggregate species is abundant and generally distributed in the low-lying parts of the county. P. June-July.

Luzula) = *Juncus campestris*, Linn. var. *b* = *J. pallescens*, Wuhl. Fl. Lapp. 87 = *Luzula multiflora*, var. *pallescens*, Bluff. et Fingerh. Comp. Fl. Germ. i. 444 (1825), which occurs at Sunningdale, Ascot, Windsor Park, Sandhurst, &c. See the author in *Rep. of Bot. Exch. Club*, 1888.

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2. **Ock.** Between Sandford and Nuneham, with leaves nearly half an inch broad, *Baxter*. Near Radley. In the Abingdon meadows.

3. **Pang.** By the Thames, in two or three places, between Wallingford and Reading.

5. **Loddon.** Near Wellington College, *Tufnail*. Shinford Green. Easthampstead. By the Loddon. Abundant and very luxuriant in a pond near Cumberland Lodge in Windsor Park, perhaps the *T. elatior*, Boenn. Prod. Fl. Monast. 274.

Typha angustifolia is recorded for all the bordering counties except Bucks.

SPARGANIUM, Linn. Gen. n. 925 (Tournefort, Inst. t. 302).

S. erectum, Linn. Sp. Pl. 971 (1753). *Great Bur Reed*.

S. ramosum, Huds. Fl. Angl. ed. 2, 401 (1778), and of C. B. Pin. 15.

Top. Bot. 429. Syme, E. B. ix. 5, t. 1387. Nyman, 757. Curt. Fl. Lond. fasc. v. t. 66. Fl. Oxf. 316.

Native. Paludal. Sides of rivers, brooks, ponds, and canals. The aggregate species is abundant and generally distributed in the low-lying parts of the county. P. June-July.

Mr. Briggs, in the *Flora of Plymouth*, points out that a growing plant of *J. Forsteri* can be distinguished at a glance, especially in fruit, as all the capsules on a panicle drop in one direction, whereas those of *J. pilosum* spread in all directions.

J. pilosum, Morong in Mem. Torrey Bot. Club, v. (1893-4) 108.
Small Hairy Wood Rush.

Luzula pilosa, Willd. Enum. Hort. Berol. 393 (1809). *Luciola pilosa*, Sm. Engl. Fl. ii. 178 (1824). *Juncus pilosus*, var. *a*, Linn. Sp. Pl. 329 (1753). *Luzula vernalis*, DC. Fl. Fr. iii. 160 (1805).

Top. Bot. 435. Syme, E. B. x. 5, t. 1548. Nyman, 752. Fl. Oxf. 313. Native. Sylvestral. Woods and thickets. Rather common, widely distributed, and too frequent to need a list of localities. P. March-May.

First record. *Luzula pilosa*, Mr. G. G. Mill in *Phyt.* i. 993, 1843.

I have found the var. **BORRERI** (Bromf. Fl. Vect. 517 as a species), in Quarry Wood.

Dr. Buchenau considers this to be a form with luxuriant leaves and immature or abortive seeds, and does not suggest a hybrid origin for it. It has been reported from Ireland, from which *J. Forsteri* is absent or not recorded.

J. pilosum is found in all the bordering counties.

J. sylvaticum (Kuntze, l. c. sub *Juncodes*). *Great Wood Rush.*

Luzula sylvatica, Gaud. Agr. Helv. ii. 240 (1811). *Juncus sylvaticus*, Huds. Fl. Angl. 132 (1762). *Luzula maxima*, DC. Fl. Fr. iii. 160 (1805). *Juncus pilosus*, Linn. Sp. Pl. p.p. 329 (1753).

Top. Bot. 434. Syme, E. B. x. 7, t. 1549. Nyman, 750. Fl. Oxf. 312. Native. Sylvestral. Woods, thickets, and heathy places. **Local.**

Evinced a preference for a sandy soil. P. April-May.

First record. *Juncus maximus*, Dr. Noehden, *Mavor's Agr. Berks*, 1809.

1. **Isis.** Wytham.

2. **Ock.** Bagley Wood. Copse between Childswell Farm and Wootton Heath, *Baxter in Walk. Fl.* Denchworth, *Wail*. [I have not seen the plant. Not a likely district.] Letcombe Copse and in other copses on Boar's Hill.

3. **Pang.** Heath Wood.

4. **Kennet.** Weston, *Osmond*. Aldermaston. Burghfield. Mortimer. Upton. Hampstead Marshall.

5. **Loddon.** Near Park Place, *Stanton*. Windsor Great Park. Bracknell. Sunningdale. Swinley. Finchampstead. Bearwood.

My notes of this species for the Kennet and Loddon districts have been mislaid, so that the above localities are from memory.

J. sylvaticum is recorded for all the bordering counties.

J. campestre, Morong in Mem. Torrey Bot. Club, v. (1893-4) 108.
Field Rush.

5. **Loddon.** Pond at the foot of Cookham Down, *Mill*. Wargrave, *Stanton*. Between Wellington Coll. and Blackwater Station, *Penny*. Wokingham. Shottesbrooke. Waltham. Ruscombe. Bearwood. Coleman's Moor. Easthampstead. Swinley. Binfield. Bray. Clewer. By the pond near Cumberland Lodge, Windsor Park. Frogmore, &c.

The plant has a great partiality for ponds in brickyards, and it soon occupies such a situation in a newly-opened place, to which the light, minute seeds doubtless are carried by the wind.

The var. *media*, ? *T. media* [Schleich. Exs. Cat. 59] in DC. Fl. Fr. vi. 302, has been found by Mr. J. C. Melvill on the Oxford side of the river near Wargrave.

In the sluggish water and mud banks near Boulney Court grow lofty plumes of reeds and reed mace seven or eight feet high, of quite a tropical character, *G. D. Leslie* in *Our River*.

T. latifolia is found in all the bordering counties.

T. angustifolia, Linn. Sp. Pl. 971 (1753). *Smaller Cat's Tail*.

T. minor, Park. 1204 and Curt. Fl. Lond. fasc. iii. t. 62.

Top. Bot. 429. Syme, E. B. ix. 4, t. 1386. Nyman, 757. Fl. Oxf. 316. Native. Paludal. Ponds and riversides. Rather local. P. June-July. First record. At Cumnor, near Oxford, in a large old fish-pond, known there by the name of Lady Dudley's Pond, but which is now nearly filled up with moss, &c., and has become nothing more than a bog, plentifully, 1838, *Baxter*, *Phaen. Bot.* n. 377, 1840.

1. **Isis.** Cumnor, *Baxter*. Not there now, but *T. latifolia* is plentiful. Buscot Lake. Buckland Lake.

2. **Ock.** Between Sandford and Nuneham, with leaves nearly half an inch broad, *Baxter*. Near Radley. In the Abingdon meadows.

3. **Pang.** By the Thames, in two or three places, between Wallingford and Reading.

5. **Loddon.** Near Wellington College, *Tufnail*. Shinford Green. Easthampstead. By the Loddon. Abundant and very luxuriant in a pond near Cumberland Lodge in Windsor Park, perhaps the *T. elatior*, Boenn. Prod. Fl. Monast. 274.

Typha angustifolia is recorded for all the bordering counties except Bucks.

SPARGANIUM, Linn. Gen. n. 925 (Tournefort, Inst. t. 302).

S. erectum, Linn. Sp. Pl. 971 (1753). *Great Bur Reed*.

S. ramosum, Huds. Fl. Angl. ed. 2, 401 (1778), and of C. B. Pin. 15.

Top. Bot. 429. Syme, E. B. ix. 5, t. 1387. Nyman, 757. Curt. Fl. Lond. fasc. v. t. 66. Fl. Oxf. 316.

Native. Paludal. Sides of rivers, brooks, ponds, and canals. The aggregate species is abundant and generally distributed in the low-lying parts of the county. P. June-July.

Luzula) = *Juncus campestris*, Linn. var. *b* = *J. pallescens*, Wahl. Fl. Lapp. 87 = *Luzula multiflora*, var. *pallescens*, Bluff. et Fingerh. Comp. Fl. Germ. i. 444 (1825), which occurs at Sunningdale, Ascot, Windsor Park, Sandhurst, &c. See the author in *Rep. of Bot. Exch. Club*, 1888.

J. multiflorum is recorded for all the bordering counties except E. Gloucestershire.

****J. NEMOROSUM**, Morong, l. c. var. **RUBELLUM**.

Luzula albida, DC. Fl. Fr. iii. 159, var. *rubella* (Hoppe, Dec. Gram. 68 as a species). *Juncus nemorosus*, var. *l*, Pollich, Hist. Pl. Pal. i. 352.

Reichb. Ic. Fl. Germ. ix. f. 854. Nym. 751.

Alien. Some plants were found in Wellington College grounds by Rev. C. W. Penny, and it has been recently gathered by Mr. Tufnail near Wellington College railway station. Mr. Tufnail thinks both the type and variety occur.

I have followed the American Check List in adopting the generic name *Juncoides*, which has distinct priority over *Luzula*, as is pointed out by Otto Kuntze in the *Rev. Gen. Pl.* ii. 722, in which he has altered the name to *Juncodes*. Since Bentham and Hooker admit the genus *Mniodes*, an equally faulty name, there does not appear to be a valid objection to the use of Adanson's name, which is therefore employed here.

TYPHACEAE, J. St. Hil. Exp. Fam. i. 60 (1805).

TYPHA, Linn. Gen. n. 924 (Tournefort, Inst. t. 301).

T. latifolia, Linn. Sp. Pl. 971 (1753). *Bulrush, Cat's Tail, Reed Mace.*

T. major, Curt. Fl. Lond. fasc. iii. t. 61. *Typha*, Gerard. *T. maxima*, Park. 1204.

Top. Bot. 429. Syme, E. B. ix. 2, t. 1385. Nyman, 757. Fl. Oxf. 315.

Native. Paludal. Marshes, ponds, ditches, sides of rivers, preferring still or stagnant water. Rather common and widely distributed.

P. June-July.

First record. Ham Marsh, *Russell's Cat.* 1839.

1. **Isis.** Cumnor, now replacing *T. angustifolia* which once occurred there. Wytham, a very splendid growth in a pond on the southern side of the hill. Buckland. Buscot. Bourton.
2. **Ock.** Sandford, *Lawson in Oxford Herb.* Marcham, *Walker.* Wantage. In the pools left by the excavation of ballast by the railway between Steventon and Challow. Didcot. Chawley. Radley. Kennington. Steventon. Appleford. Boar's Hill.
3. **Pang.** Lake, Purley Hall. Tilehurst, in pools, *Tufnail.* By the Thames near Wallingford. Near Reading. Bradfield. Oare Hermitage. Bucklebury. At Pangbourn it is known by the name of Tottenham Flag.
4. **Kennet.** Theale. Ham Marsh, *Russell, l.c.* Southcote. Hampstead Marshall. Aldermaston. Sulhampstead. Mortimer. Burghfield Shaw. Newbury. Sandleford. Kintbury. Hungerford. Benham. Chilton Foliat, &c.

5. Loddon. Pond at the foot of Cookham Down, *Mill*. Wargrave, *Stanton*. Between Wellington Coll. and Blackwater Station, *Penny*. Wokingham. Shottesbrooke. Waltham. Ruscombe. Bearwood. Coleman's Moor. Easthampstead. Swinley. Binfield. Bray. Clewer. By the pond near Cumberland Lodge, Windsor Park. Frogmore, &c.

The plant has a great partiality for ponds in brickyards, and it soon occupies such a situation in a newly-opened place, to which the light, minute seeds doubtless are carried by the wind.

The var. *media*, ? *T. media* [Schleich. Exs. Cat. 59] in DC. Fl. Fr. vi. 302, has been found by Mr. J. C. Melvill on the Oxford side of the river near Wargrave.

In the sluggish water and mud banks near Boulney Court grow lofty plumes of reeds and reed mace seven or eight feet high, of quite a tropical character, *G. D. Leslie* in *Our River*.

T. latifolia is found in all the bordering counties.

T. angustifolia, Linn. Sp. Pl. 971 (1753). *Smaller Cat's Tail*.

T. minor, Park. 1204 and Curt. Fl. Lond. fasc. iii. t. 62.

Top. Bot. 429. Syme, E. B. ix. 4, t. 1386. Nyman, 757. Fl. Oxf. 316. Native. Paludal. Ponds and riversides. Rather local. P. June-July. First record. At Cumnor, near Oxford, in a large old fish-pond, known there by the name of Lady Dudley's Pond, but which is now nearly filled up with moss, &c., and has become nothing more than a bog, plentifully, 1838, *Baxter*, *Phaen. Bot.* n. 377, 1840.

1. *Isis*. Cumnor, *Baxter*. Not there now, but *T. latifolia* is plentiful. Buscot Lake. Buckland Lake.

2. *Ock*. Between Sandford and Nuneham, with leaves nearly half an inch broad, *Baxter*. Near Radley. In the Abingdon meadows.

3. *Pang*. By the Thames, in two or three places, between Wallingford and Reading.

5. Loddon. Near Wellington College, *Tufnail*. Shinford Green. Easthampstead. By the Loddon. Abundant and very luxuriant in a pond near Cumberland Lodge in Windsor Park, perhaps the *T. elatior*, Boenn. Prod. Fl. Monast. 274.

Typha angustifolia is recorded for all the bordering counties except Bucks.

SPARGANIUM, Linn. Gen. n. 925 (Tournefort, Inst. t. 302).

S. erectum, Linn. Sp. Pl. 971 (1753). *Great Bur Reed*.

S. ramosum, Huds. Fl. Angl. ed. 2, 401 (1778), and of C. B. Pin. 15.

Top. Bot. 429. Syme, E. B. ix. 5, t. 1387. Nyman, 757. Curt. Fl. Lond. fasc. v. t. 66. Fl. Oxf. 316.

Native. Paludal. Sides of rivers, brooks, ponds, and canals. The aggregate species is abundant and generally distributed in the low-lying parts of the county. P. June-July.

First record of the aggregate species. *S. ramosum*, Greater Burweed, Dr. Noehden, *Mavor's Agr. Berks*, 1809. The restricted species is recorded here for the first time.

The true *S. erectum* (*S. ramosum*, Huds.) is found in all the districts. I have not kept a complete list of localities, but have noted it at Wytham, Appleton, Lechlade, &c. in the Isis district; at Abingdon, Kennington, Appleford, Radley, Marcham, Hagborne, &c. in the Ock district; at Bradfield and Tidmarsh in the Pang district; at Theale, &c. in the Kennet district; and at Winkfield, Wellington, Windsor, &c. in the Loddon district.

S. erectum is recorded for all the bordering counties.

S. neglectum, Beeby in Journ. Bot. xxiii. (1885) 26.

S. erectum, var. *neglectum*, Richt. Pl. Europaeae, 10 (1890).

This plant is found in similar situations to the last, with which I have seen it growing.

First found in Berkshire by the author in 1885 and recorded in the *Flora of Oxfordshire*, 316, 1886. I have kept no exhaustive list of its localities, but I have noticed it in all the districts.

1. Isis. Cumnor. Buscot Park. Longworth. Wytham Wood.
2. Ock. South Hinksey. Abingdon. Radley. In ditches on Abingdon Racecourse, very fine. By the canal at Uffington, Wantage, Cothill, &c.
3. Pang. Moultsford.
4. Kennet. Sandford, &c.
5. Loddon. Hurst. Winkfield. Wokingham. Wargrave. Virginia Water. Sandhurst, &c.

S. neglectum is found in all the bordering counties.

S. simplex, Huds. Fl. Angl. ed. 2, 401 (1778). *Bur-reed*.

S. erectum, var. *b*, Linn. Sp. Pl. 971.

Top. Bot. 429. Syme, E. B. ix. 6, t. 1388. Nyman, 758. Fl. Oxf. 317. Native. Lacustral. Rivers, canals, ponds, and brooks. Common and generally distributed. P. July-August.

First record. Sonning, Mr. S. Rudge in Herb. Brit. Mus. 1800. *S. simplex*, Dr. Noehden in *Mavor's Agr. Berks*, 1809.

In our rivers and canals it is often barren. Occasionally the form with floating leaves and stems bears flowers, and naturally the base of the floating leaf is not so distinctly triangular; this I have seen at Ferry Hinksey, &c.; it is the var. *FLUITANS*, Gren. & Godr. Fl. Fr. iii. 337.

Sparganium simplex is found in all the bordering counties.

[**S. AFFINE**, Schnitz. Typh. 27 (1845). *S. natans*, Linn. Sp. Pl. p. 971 (1753) p.p., Gren. et Godr., and of most authors. Syme, E. B. ix. 7, t. 1389.

Is recorded for Surrey, and with some doubt for Wiltshire.]

- [**S. MINIMUM**, Fries, *Summa Veg. Scand.* ii. 560 (1846-9). *S. natans*, Linn. Sp. Pl. 971 (1753) p.p., and of Herb. chiefly. Syme, E. B. ix. 8, t. 1390. Is recorded for Hampshire.]

ARACEAE, Neck. Act. Ac. Theod. Pal. ii. 462 (1770).

ARUM, Linn. Gen. n. 915 (Tournefort, Inst. t. 69).

A. maculatum, Linn. Sp. Pl. 966 (1753). *Lords and Ladies*, *Wake Robin*, *Cuckoo Pint*.

Top. Bot. 427. Syme, E. B. ix. 13, t. 1392. Nyman, 755. Fl. Oxf. 314. Native. Sylvestral. Woods, thickets, hedge-banks, &c. Common in all the districts, but owing to the trimming of the hedges less frequent than formerly. P. April-May.

First record. Sonning, *Mr. S. Rudge in Herb. Brit. Mus.* 1800. *Arum maculatum*, Dr. Noehden, *Mavor's Agr. Berks.* 1809. With *Æcidium Ari*, Hook. on it in Bagley Wood, *Baxt. Phaen. Bot.* n. 261.

Var. **IMMACULATUM**, *A. vulgare*, var. *immaculatum*, S. F. Gray, Nat. Arr. ii. 38 (1821), the form with unspotted leaves, is also frequent.

Arum maculatum is found plentifully in the bordering counties.

- [**A. ITALICUM**, Miller, Gard. Dict. ed. 8, n. 2 (1768). Syme, E. B. ix. 15, t. 1343. Is recorded for South Hants, but it is not the typical continental form.]

ACORUS, Linn. Gen. n. 392.

A. Calamus, Linn. Sp. Pl. 324 (1753). *Sweet Flag*.

Calamus Aromaticus, Pet.

Top. Bot. 428. Syme, E. B. ix. 11, t. 1391. Nyman, 754. Fl. Oxf. 314. Native. Paludal. Sides of rivers and ponds. Locally common. P. June-August.

First record. *Typha aromatica clava rugosa*, nobis. Ad fluviorum ripas et in aquosis variis . . . circa piscinas et canales Honoratissimi et Maecenatis insignis H. Comitibus de Clarendon apud Swallowfield in Com. Berks., (*Bobart*) *Morison, Hist. Ox.* iii. 246, 1699.

1. **Isis**. Buckland.
2. **Ock**. Between Oxford and Iffley on the banks of the Isis, near the Lasher, *Baxter in Purt. Midl. Fl.* 1821. Kennington and Sandford. Marcham, *Walker*. Abingdon. Near Wittenham. Between Abingdon and Radley, flowering freely. Near Wallingford. At intervals along the river during its course from Oxford southwards.
3. **Pang**. By the Pang at Tidmarsh. Purley Hall Lake, *Tufnail*. Near Moulsoford and Streatley, and between Tilehurst and Reading; common at intervals by the Thames from Mongewell to Reading.
4. **Kennet**. By Burghfield Bridge, &c., *Tufnail*.

5. **Loddon.** Swallowfield, *Bobart*. Windsor Great Park by the Cascade, *Lightfoot MSS.* 1762 (the actual locality is in Surrey). Bisham, *Melville*. Near Henley, frequent by Park Place, *Stanton*. By Loddon Bridge, *Salmon*. Plentiful by Virginia Water. By the Loddon side not infrequent. Arborfield. Wargrave. Near Hurley. Near Bray. Windsor. Frogmore. Binfield.

It is recorded for all the bordering counties except E. Gloucestershire.

LEMNACEAE, Duby Bot. Gall. i. 553 (1828).

LEMNA, Linn. Gen. 923 (*Lenticula*, Mich.).

- L. trisulca**, Linn. Sp. Pl. 970 (1753). *Ivy-leaved Duckweed*.
Top. Bot. 426. Syme, E. B. ix. 17, t. 1394. Nyman, 756. Fl. Oxf. 314.
Native. Lacustral. Ponds, ditches, principally of stagnant water.
Not uncommon in low situations. A. June.

First record. In *Britten's Contr.* 1871, but without locality.

1. **Isis.** Buckland. Buscot. Cumnor. Appleford. Wytham.
2. **Ock.** Denchworth, *Wait*. Kennington. South Hinksey. Radley. Abingdon. Marcham. Challow. Wantage. Cholsey. Appleford. Uffington.
3. **Pang.** Englefield. Purley, *Tufnail*. Pangbourn. Bucklebury. Between Tilehurst and Reading.
4. **Kennet.** Mortimer, *Tufnail*. Southcote. Benham. Padworth. Aldermaston.
5. **Loddon.** In the Lake at Park Place, *Stanton*. Sonning Meadows, abundant in all the ditches, *Tufnail*. Winkfield. Bray. Coleman's Moor. Ruscombe. Bisham. Virginia Water. Windsor Park. Frogmore.

Lemna trisulca is found in all the bordering counties.

- L. minor**, Linn. Sp. Pl. 970 (1753). *Common Duckweed*.
Top. Bot. 425. Syme, E. B. ix. 21, t. 1395. Nyman, 756. Fl. Oxf. 315.
Native. Lacustral. Ponds and ditches. Abundant in all the districts. P. June-July.

First recorded in *Mavor's Agr. Berks*, 1809.

It is found in all the bordering counties.

- L. gibba**, Linn. Sp. Pl. 970 (1753).
Telmatophace gibba, Schleiden in *Linnaea*, xiii. (1839) 391.
Top. Bot. 425. Syme, E. B. ix. 22, t. 1396. Nyman, 756. Fl. Oxf. 315.
Native. Lacustral. Ponds and ditches of stagnant water. Local.
P. June-August.

First record, without locality, in *Britt. Contr.* 1871.

1. **Isis.** Near Wytham. Shrivenham. Cumnor.

2. **Ock.** Kennington, *Garnsey*. Denchworth in flower, 1895, *Wait*. Abingdon. South Hinksey. Radley. With reddish leaves at Uffington. Cholsey.
 3. **Pang.** Pangbourn Marsh. Purley. Tilehurst, *Tufnail*. Near Moultsford.
 4. **Kennet.** Near Mortimer, *Tufnail*. Southcote. Aldermaston.
 5. **Loddon.** Sonning Meadows. Loddon Bridge, *Tufnail*. Wargrave. Hurst. Coleman's Moor. Waltham. Arborfield. Near Windsor.
- L. gibba*, which is more frequent than the foregoing records show, is recorded for all the bordering counties except E. Gloucestershire.

L. polyrrhiza, Linn. Sp. Pl. 970 (1753). *Greater Duckweed*.

Spirodela polyrrhiza, Schleiden in Linnaea, xiii. (1839) 392.

Top. Bot. 426. Syme, E. B. ix. 23, t. 1397. Nyman, 756. Fl. Oxf. 315. Native. Lacustral. Ponds and ditches of stagnant water. Not uncommon. P.

First record. Sonning, Mr. S. Rudge, in *Herb. Brit. Mus.* 1800. *L. polyrrhiza*, Mavor's *Agr. Berks*, 1809, and the author in *Rep. of Bot. Rec. Club* for 1881.

1. **Isis.** Wytham. Cumnor. Lechlade.
2. **Ock.** Wantage. Radley. Kennington.
3. **Pang.** Pangbourn Marsh. Englefield, *Tufnail*. Moultsford. Bucklebury.
4. **Kennet.** Mortimer, *Tufnail*. Southcote. Embrook Mill. Hungerford.
5. **Loddon.** Sonning, *Rudge*. Hurst Green, *Melvill*. Ditch in Remenham Lane, *Stanton*. Home Park, Windsor, *Bolton King*. Bray. Arborfield. Ruscombe. Shottesbrooke. Hurst. Winkfield. Near Wargrave. Wokingham.

L. polyrrhiza is found in all the bordering counties, and is more plentiful in Berkshire than the above records show.

[**HORKELIA** (Reichb. ex Bartl. Ord. Nat. 76, 1830, and Schleiden in Linnaea (1839), 389, **ARRHIZA** (L.).

Wolffia Michelii, Schleid. Beit. Bot. i. 238 (1844). *Wolffia*, Horkel ex Schleiden in Linnaea (1839) 389. *W. arrhiza*, Wimm. Fl. Schles. 140 (1857). *Lemna arrhiza*, Linn. Mant. ii. 294 (1771). Syme, E. B. ix. 24, t. 1398.

Has been recorded for Surrey.

The name *Wolffia*, for another reason, is scarcely tenable, as there is already a genus *Wolffia*.]

ALISMACEAE, DC. Fl. Fr. iii. 181 (1805).

ALISMA, Linn. Gen. n. 418.

A. Plantago-aquatica, Linn. Sp. Pl. 342 (1753). *Water Plantain*.

Plantago aquatica, Gerard, 337.

Top. Bot. 409. Syme, E. B. ix. 70, t. 1437. Nyman, 679. Fl. Oxf. 280.

Native. Paludal. Sides of rivers, streams, ponds, and canals, ditches, and wet places. Common throughout the county in suitable situations. P. May–August.

First record. Sonning, Mr. S. Rudge, in *Herb. Brit. Mus.* 1800. *Alisma plantago*, Dr. Noehden, *Mavor's Agr. Berks*, 1809.

The Water Plantain is too frequent in Berkshire to require a list of localities.

Var. *LANCEOLATUM* (With. Bot. Arr. ed. 3, ii. 362 (1796), as a species), Syme, E. B. t. 1438, a form with lanceolate leaves, shorter style, and oval not oblong sepals, which appear to merge gradually into the type, is also found scattered through all the districts.

1. Isis. Cumnor. Buckland. Near Faringdon. Shrivenham.
2. Ock. Marcham. Wantage. Cholsey. 3. Pang. Pangbourn. Bradfield. 4. Kennet. Theale. Padworth. 5. Loddon. Between Wokingham and Sandford Mill, Salmon. Hurst. Winkfield. Ambarrow. Clewer. Bracknell. Windsor Park.

A. Plantago-aquatica is found commonly in all the bordering counties.

ECHINODORUS, Rich. in *Mém. Mus. Par.* i. (1815) 365.

E. ranunculoides, Engelm. in *Asch. Fl. Brand.* i. 651. *Lesser Water Plantain*.

Alisma ranunculoides, Linn. *Sp. Pl.* 343 (1753).

Top. Bot. 409. Syme, E. B. ix. 71, t. 1439. Nyman, 679. *Fl. Oxf.* 280. Native. Lacustral. Ditches, marshes. Very rare and local. P. June–August.

First record. *Alisma ranunculoides*, Mr. Bicheno in *Mavor's Agr. Berks*, 1809, but without locality.

2. Ock. Sparingly at Cothill in a ditch much shaded by vegetation, in close proximity to the bog.
4. Kennet. As Mr. Bicheno lived at Newbury it is probable that he saw this plant in the Kennet Valley, and it is given without locality in Mrs. Russell's *Newbury Cat.* 1839. Hitherto I have been unable to find it in the Kennet Valley, which offers very suitable localities.

E. ranunculoides is recorded for all the bordering counties, but I am afraid is now extinct in Oxfordshire.

SAGITTARIA, Linn. *Gen. n.* 946 (*Sagitta*, Dill. *Gen.* 4).

S. sagittifolia, Linn. *Sp. Pl.* 993 (1753). *Arrowhead*.

Top. Bot. 410. Syme, E. B. ix. 68, t. 1436. Nyman, 679. *Fl. Oxf.* 281. Native. Lacustral. Shallow streams. Common on muddy beds of streams in the lower valleys. P. July–August.

First British record. *Pistana Magonis sive Plinii*, *Sagittaria aquatica*. In Anglia prope Oxonium pone maenia in amaenissimis illic residuis, sed lymphidissimis aquis, Lobel. *Adversaria*, 127, 1576.

Also as '*Sagittaria major*, Greate Arrowhead, and *Sagittaria minor Angustifolia*, narrow-leaved Arrow Head. These herbes do grow . . . in the ditches neere the wals of Oxforde,' Gerard, *Herbal*, 337, 1597, and '*Sagittaria longissima cuspidate pedali*. Arrow head with a leaf a foot or more long. In the ditches about Oxford,' Merrett's *Pinax*, 107, 1666.

'This very graceful plant is found in abundance about Oxford, but there are few parts of the Upper Thames which it does not enliven by its luxuriance.' Hall's *Book of the Thames*, 80.

The *Sagittaria* is common along our chief waterways in all the districts, and is well known from its unique appearance.

The narrow-leaved form mentioned by Gerard, the var. *parvifolia*, Sibth. Fl. Oxon, 178, is only a state, as is the extreme form mentioned by Merrett. At Wantage I found some specimens with exceptionally narrow sagittate leaves.

The Arrow Head is found in all the bordering counties.

DAMASONIUM, Miller, Gard. Dict. ed. 7 (1759), and Adans. Fam. ii. 458 (1763).

D. Alisma, Miller, Gard. Dict. ed. 8 (1768). *Star-headed Water Plantain*.

Alisma Damasonium, Linn. Sp. Pl. 343. *Actinocarpus Damasonium*,

Sm. in Rees, Cycl. Damasonium stellatum, Thuill. Fl. Par. ed. 2, 186.

D. Damasonium.

Top. Bot. 410. Syme, E. B. ix. 74, t. 1442. Nyman, 679. Fl. Oxf. 281. Native. Paludal. Ditches, ponds, in still or stagnant water. Very rare. P. June-August.

First record. *Alisma Damasonium*, Rev. Dr. Goodenough [afterwards Bishop of Carlisle] in *Sm. Fl. Brit. i.* 402, 1800.

4. Kennet. Ditches about Southcote, Fardon in *Bot. Guide and Mavor's Agr. Berks*, 1809. Now, I am afraid, extinct, as I have frequently searched for it; there is an abundance of *Alisma Plantago*, but the *Damasonium* appears to have gone.

5. Loddon. Winkfield Plain, near Windsor, Rev. Dr. Goodenough. Bracknell, Rev. E. F. Wits in *Bart. Phaen. Bot.* 437. In the number of ponds which are to be found on the London Clay, on Winkfield Plain and the vicinity, I have also been unsuccessful in my search for *Damasonium*. Many of the ponds are too much visited by geese to allow of much vegetation, but in those which contain the common *Alisma* I could find no trace of *Damasonium*. At Bracknell I have been equally unfortunate. One large shallow pond, which is marked on the Ordnance Map, is now drained. At Waltham, or rather between Waltham and Hurst, I found some seedlings, which were not *Alisma*, and may possibly be these, unless they are only *Sagittaria*. I still have hopes of finding the plant in Berkshire.

D. Alisma is not recorded for Oxfordshire, Wilts, or E. Gloucestershire, but is found in Buckinghamshire, Surrey, and Hampshire.

BUTOMUS, Linn. Gen. n. 455 (Tournefort, Inst. t. 143).

B. umbellatus, Linn. Sp. Pl. 372 (1753). *Flowering Rush.*

Top. Bot. 411. Syme, E. B. ix. 76, t. 1443. Nyman, 678. Fl. Oxf. 279. Native. Paludal. By streams and brooks. Locally common, but perhaps diminishing in frequency. P. June-July.

First record. The Loddon, Mr. S. Rudge, 1800, in *Herb. Brit. Mus.* Published by Dr. Noehden and Mr. Bicheno in *Mavor's Agr. Berks*, 1809.

1. *Isis*. In the canal near Shrivenham. Near Kelmscott. Near Lechlade. Appleton. Wytham. At intervals in the Thames from the Cole to Oxford. Buckland Lake. Buscot Lake.
2. *Ock*. Near Oxford, not uncommon, *Baxter in Part. Midl. Fl.* Iffley, &c., *Garnsey*. Marcham, *Walker*. Denchworth, *Wait*. Day's Lock, *G. D. Leslie*. North Hinksey, *Ridley*. Near Uffington in the canal abundant, and also found at intervals along its course to Abingdon. Ferry Hinksey, abundant. Kennington. Between Radley and Abingdon in the meadow ditches.
3. *Pang*. Tidmarsh, *Tufnail*. Moulsoford. Pangbourn. Tilehurst, and between Tilehurst and Reading.
4. *Kennet*. Northcroft, and other streams near Newbury, *Bunny*. Newbury, *Reeks*. In the peat pits near Newbury, *Bicheno*. Burghfield Meadows, *Tufnail*. Benham. Near Southcote. Theale. Midgham.
5. *Loddon*. Banks of the Loddon, *Rudge*. Pond at the foot of Cookham Down, *Mill*. Under Quarry Wood, *Britten*. Near Wargrave, *Stanton*. Near Eton, *Dyer*. Hurley, *Leslie*. Sonning Meadows, *Tufnail*. Near Albert Bridge, Home Park, *Bolton King*. Bisham. Bray. Arborfield, &c.

'Near Abingdon we were gratified by finding this most elegant aquatic, clumps of which were constantly occurring where the water was shallow, either at the river-side or in spots where the ground approached the surface in mid-stream. It is by no means common to all the banks along the Thames.' *Hall's Book of the Thames*, 132.

The lighter green colour of the leaves, which are also shorter and narrower, distinguishes this plant, when not in flower, from *Sparganium*. They are of a more yellowish green than *Panicularia (Glyceria) aquatica*.

Butomus umbellatus is found in all the bordering counties.

NAIADACEAE, Lindl. Nat. Syst. ed. 2, 366 (1836).

TRIGLOCHIN, Linn. Gen. n. 409 (*Juncago*, Tourn. Inst. t. 142).

T. palustre, Linn. Sp. Pl. 338 (1753). *Marsh Arrow Grass.*

Top. Bot. 412. Syme, E. B. ix. 65, t. 1433. Nyman, 680. Fl. Oxf. 281.

Native. Uliginal. Marshes, wet meadows, &c. Locally common.
P. June-August.

First record. *T. palustre*. Newbury, *Russell's Cat.* 1839.

1. **Isis.** Wytham Meadows. Near Eynsham. Near Coleshill.
2. **Ock.** Ferry Hinksey, very fine specimens. South Hinksey.
Damp fields, near Kennington. Ifley Meadows. Near Sandford.
Near Abingdon. Marcham. Radley. Cothill. Marsh between
Wantage and Letcombe. Abingdon Racecourse.
3. **Pang.** Tidmarsh, *Newbould*. Pangbourn Marsh. Moulsoford.
4. **Kennet.** Bagnor Marsh, *Russell, l.c.* Greenham. Newbury. Near
Theale.
5. **Loddon.** Bisham, *Chandler*. Wargrave. Sonning Meadows, very
fine, *Tufnail*. Coleman's Moor.

The saline meadow, near Marcham, has a considerable growth of it, but the maritime species does not occur there. I have very few notes of *Triglochin* from the heathy district, but it is plentiful in the meadows of the Upper Thames. The plant is recorded for all the bordering counties.

POTAMOGETON, Linn. Gen. n. 160 (Tournefort, Inst. t. 103).

P. natans, Linn. Sp. Pl. 126 (1753). *Floating Pondweed*.

Top. Bot. 420. Syme, E. B. ix. 26, t. 1399. Nyman, 681. Fl. Oxf. 282.
Native. Lacustral. Ponds, rivers, ditches, &c. Common, and generally distributed in all the districts, except over the heathy tracts, where it is replaced by the succeeding species. P. June-July.

First record. Binfield, *Mr. S. Rudge, in Herb. Brit. Mus.* 1800. *P. natans*, Mavor's Agr. Berks, 1809.

P. natans is too common in the Isis, Ock, Pang, and Kennet districts to need enumeration of its localities. I have found it in Wigmoreash Pond near Gibbet Hill at 912 feet altitude. In the heathy portion of the Kennet district it occurs at Aldermaston, Benham, Stockcross, Hampstead Marshall, and in the Kennet itself, plentifully. In the heathy area of the Loddon district the *Rev. C. W. Penny* records it for Heath Pool, and it is plentiful in Virginia Water, Bracknell, &c., and abundant in the Thames and Loddon.

Potamogeton natans occurs in all the bordering counties.

P. polygonifolius, Pourr. in Mém. Acad. Toul. iii. (1788) 325.

P. oblongus, Viv. Fragm. Fl. Ital. i. 1, t. 2.

Top. Bot. 421. Syme, E. B. ix. 27, t. 1400. Nyman, 681. Fl. Oxf. 282.
Native. Lacustral. Ponds, ditches, and pools in heathy places. Very rare, or perhaps absent, from the Isis and Ock districts, and very local in the Pang district. Abundant in the heathy part of the Loddon, and locally common in the Kennet district. In the heathy parts replacing *P. natans*. P. June-August.

First recorded by Mr. H. C. Watson in *Britten's Contrib.* 1871.

2. **Ock.** Near South Hinksey. Not recently seen.
3. **Pang.** Oare. Cold Ash Common.
4. **Kennet.** Burghfield. Aldermaston. Ufton. Snelsmore Common. Greenham Common. Hampstead Marshall, &c.
5. **Loddon.** Ascot, *Wilkin*, sub nom. *P. natans*. Near Wokingham, *Watson*. Loddon river, *Melville*. So common in the heathy district as not to require localities. It also occurs in Virginia Water, Bulmarsh, Bearwood, &c.

P. polygonifolius is recorded for all the bordering counties except E. Gloucestershire.

P. fluitans, Roth Tent. Fl. Germ. i. 72 (1788).

Reichb. Ic. Fl. Germ. et Helv. vii. 48, 49, f. 87, 88. Syme, E. B. ix. 63. Nyman, 681.

Native. Lacustral. Rivers. Very local. P. July–August.

First found in Berkshire by the author in 1893.

5. **Loddon.** Plentiful in the Loddon between Twyford and Loddon Bridge. My attention was first called to it on a hot June day by the beautiful green leaves, with very pellucid parenchyma, which were growing in shallow water from a gravelly bottom in the Loddon. It was then a new plant to me, and I could not resist the pleasure of gathering it *in situ*, so I at once walked into the stream and procured a good series of specimens. Subsequently I hired a boat at Loddon Bridge and then was able to trace the plant for a considerable distance along the stream, not only in shallow but in deep water, in very fine condition and flowering freely. Mr. Fryer places it under *P. fluitans*, Roth., but says it is not quite like any other *fluitans* in his herbarium. My idea, when I gathered it, was that it was a hybrid, *P. natans* x *alpinus*.

An interesting note on this species will be found in Journ. Bot. (1888) 273–8, by my friend Mr. A. Fryer.

Surrey is the only one of the bordering counties for which *P. fluitans* is recorded.

P. coloratum, Hornem. in Fl. Dan. t. 1449 (1813).

P. plantagineus, Du-Croz ex Roem. et Schultes, Syst. iii. 504 (1818).

Top. Bot. 422. Syme, E. B. ix. 29, t. 1401. Nyman, 682.

Native. Lacustral. Pools of stagnant water in boggy places. Very local. P. June–August.

First found in Berkshire by the author, and recorded as *P. plantagineus* in the Journ. Bot. 362, 1886.

2. **Ock.** Abundant in Cothill Marsh, fruiting freely, associated with *Chara hispida*, *Utricularia major*, &c.

The locality reminds me very much of the spot in which I gathered this species, near Diss, in Norfolk ; there it was associated with *Chara polyacantha*.

P. coloratum does not appear to be recorded for any of the neighbouring counties.

P. alpinus, Balb. Misc. 13 (1804).

P. rufescens, Schrad. in Chamisso Adn. ad Fl. Berol. 4 (1815). *P. obtusus*, Ducros in Gaud. Fl. Helv. i. 468 (1828). *P. fluitans*, Sm. E. B. t. 1286, not of Roth.

Top. Bot. 419. Syme, E. B. ix. 30, t. 1402. Nyman, 681. Fl. Oxf. 282.

Native. Lacustral. Streams, pools, and ponds. Rare and local. P. July. First certainly recorded by the author in this *Flora*.

[4. Kennet. Hampstead (Marshall) Ponds, *Russell's Cat.* 1839. These ponds have been searched by me on more than one occasion unsuccessfully. *P. natans*, which is not given by *Mrs. Russell*, occurs there with reddish foliage, and I suspect an error of identification, as I have had this form of *P. natans* sent me as *P. rufescens*. A semi-descriptive name leads not unfrequently to error. The locality is not an unlikely one, and that or some portions of the Kennet stream may yet afford the true plant, but it cannot be admitted for this district until verified.]

5. Loddon. On the same day on which I gathered *P. fluitans* I was fortunate enough to meet with this species flowering freely in three different places on the Loddon between Twyford and Loddon Bridge. I think its abundance that year was partly due to the unusual amount of sunshine. All our submerged species were more than usually common ; this species developed its floating leaves, and the contrast with *P. fluitans* was very pleasing. Later in the same year my friend, the Rev. H. J. Riddelsdell, who was with me when I first found it, met with it in a pool on Bagshot Heath. Subsequently I found it in some quantity in Virginia Water, both in Berkshire and Surrey. It occurs very sparingly near Sandhurst.

The var. *homophyllus* (sub *P. rufescens*, Syme, E. B. 31), appears to be only a submerged state.

P. alpinus, under the name of *P. rufescens*, is recorded in Mr. Britten's *Contributions* as having been gathered by Mr. Boswell, who however tells me he has never seen it in Berkshire. It is recorded for all the bordering counties except E. Gloucestershire.

[**P. GRAMINEUM**, Linn. Sp. Pl. 127 (1753). *P. heterophyllum*, Schreber, Spic. Fl. Lips. 21 (1771).

Top. Bot. 418. Syme, E. B. ix. 35, t. 1406. Nyman, 682. Fl. Oxf. 283.

Error? Recorded as *P. Proteus* in Mr. Britten's *Contributions*, 1871, for the northern division of the county, on the authority, it is stated, of Mr. Boswell ;

but Mr. Boswell has assured me that he never gathered it in the county, nor is it represented in his herbarium from our district. Probably he may have recorded *P. gramineum*, auct., by which he would mean *P. compressum* (*P. zosterifolius*). The record of Bulmarsh Lake in my *Flora of Oxfordshire* belongs to *P. obtusifolius*, which, by a slip of the pen, Mr. Tufnail marked in his Catalogue as this species. *P. gramineum* should be found in Berkshire, as it is recorded for Surrey, Hants, and Wilts. I very much doubt the Oxfordshire records. Until we have confirmation of its occurrence in Berkshire, the species must be bracketed.]

[**P. NITENS**, Web. Fl. Holsat. Supp. No. 11 (1787). Syme, E. B. ix. 36, t. 14c7. Is found in Surrey.]

P. lucens, Linn. Sp. Pl. 126 (1753).

Top. Bot. 417. Syme, E. B. ix. 38, t. 1408. Nyman, 682. Fl. Oxf. 282.

Native. Lacustral. Rivers, canals, ponds, &c. Abundant and generally distributed in our larger streams. P. June-July.

First record. Oxford, Sir J. E. Smith, *Herb. Linn. Soc.* 1800. S. Hinksey, Mr. Baxter, MSS. 1823.

This is perhaps our commonest species of Pondweed. Very fine specimens are to be seen in the Thames, as at Ferry Hinksey, and in the Kennet and Loddon. It exists in several forms, but the most noticeable one is that in which the mid-rib is prolonged beyond the leaf lamina; this is, I believe, the var. *ACUMINATUS*, Fries, Nov. Fl. Suec. 46 (1816) = *P. acuminatus*, Schum. Enum. Pl. Saell. 49 (1801), which in some districts is commoner than the form in which the mid-rib is not prolonged beyond the leaf blade.

P. lucens is found in all the bordering counties.

[**P. DECIPIENS**, Nolte ex Koch Syn. ed. 2, 779 (1843-5). Syme, E. B. ix. 39, t. 1409. Fl. Oxf. 283. Is recorded for Oxfordshire, Surrey, and Hampshire.]

[**P. ANGUSTIFOLIUS**, Presl, Rostlin, i. 531 (1820) = *P. Zizii*, Koch ex Roth Enum. Pl. Germ. i. 531, is recorded for Surrey.

In the *Index Kewensis*, *P. angustifolius*, Bercht. & Presl in Rostlin, i. Allismac. 19, is said to be synonymous with *P. pectinatum*.]

P. praelongus, Wulf. in Roem. Arch. 3, iii. 331 (1803-5).

Top. Bot. 419. Syme, E. B. ix. 41, t. 1411. Nyman, 682. Fl. Oxf. 283-4.

Native. Lacustral. Rivers and canals. Locally common. P. May-June.

First recorded by Mr. W. Borrer in *E. B. Suppl.* t. 2858, 1841; see also *Phyt.* 28, 1841.

2. **Ock.** Abundant in Thames between Oxford and Sandford, *Dyer*. Still plentiful in the Thames between the University Boat House and Iffley. Between Iffley and Sandford, see *Rep. of Bot. Exch. Club*, 1892. Near Abingdon. Near Sutton Courtney. Near Dorchester. In the Canal at Uffington, at Wantage, and between Wantage and Abingdon.

3. **Pang.** In the Thames at Moulsoford and near Pangbourn.

4. **Kenet.** In a ditch adjoining the Thames near Caversham Bridge, *Borner*, l. c.

5. **Loddon.** Near Aston Ferry and Hurley. Near Bray.

P. prae'ongus is recorded for Bucks, Oxfordshire, and Surrey.

P. perfoliatum, Linn. Sp. Pl. 126 (1753).

Top. Bot. 417. Syme, E. B. ix. 42, t. 1412. Nyman, 682. Fl. Oxf. 284.

Native. Lacustral. Ponds, rivers, ditches, and canals. Common and widely distributed. P. July–August.

First record. Oxford, *Sir J. E. Smith, in Herb. Linn. Soc.* 1800. Loddon, *Mr. S. Rudge, 1800, in Herb. Brit. Mus.* The records in Sibthorp's *Flora Oxon.* of this and other plants of the Thames would necessarily include Berkshire localities.

P. perfoliatum is too frequent in all our larger streams and canals to need an enumeration of localities.

Between Eynsham and Shilford, and in the Canal between Marcham and Abingdon, a form with rounder leaves occurs. Hitherto I have been unsuccessful in my search for a hybrid with *P. crispum*, which we may expect to occur.

P. perfoliatum occurs in all the bordering counties.

P. crispum, Linn. Sp. Pl. 126 (1753). *Greater Water Caltrops.*

Top. Bot. 416. Syme, E. B. ix. 43, t. 1413. Nyman, 682. Fl. Oxf. 284.

Native. Lacustral. Ponds, streams, and ditches. Rather common.

P. June–July.

First recorded by Mr. H. Boswell in *Britt. Contr.* 1871.

1. **Isis.** Near Bablock Hythe. Wytham. Shrivenham. Lechlade. Buscot.

2. **Ock.** In the Thames, *Boswell*, 1866. Sandford, *Lawson in Oxf. Herb.* Iffley. Kennington. Abingdon Canal, not unfrequent between Abingdon and Marcham, Steventon, Wantage, &c. Wittenham. Appleford. Radley, &c.

3. **Pang.** Moulsoford. Bradfield. Pangbourn. Tilehurst, &c.

4. **Kenet.** Burghfield. Theale. Benham. Hungerford.

5. **Loddon.** Loddon, *Rudge*. Windsor, *Bolton King*. Wargrave. Near Shurlock Row. Shottesbrooke. Virginia Water. Spencer's Wood Common. Winkfield. Arborfield. Near Windsor. Sandhurst, &c.

Var. **SERRATUM** (Huds. Fl. Angl. 61 (1762), as a species).

1. **Isis.** Shrivenham. Wytham. Near Botley. Near Eynsham.

2. **Ock.** Sandford. Kennington. Radley. 3. **Pang.** Moulsoford.

Langley Hall, in a pond. 4. **Kenet.** Padworth.

Aldermaston. Burghfield. In Wigmoreash Pond at 912 feet

altitude. 5. **Loddon.** Sonning Meadows, *Tufnail*. Sandhurst.

Near Hurst. Near Binfield.

This is by some botanists considered to be only a *young* state, but I have seen it fruiting. For a most interesting account of this Pondweed, see a paper by that most accurate and painstaking observer of this critical genus, Mr. A. Fryer, in *Journ. Bot.* (1890) 225.

P. crispum occurs in all the bordering counties.

P. densum, Linn. Sp. Pl. 126 (1753).

Top. Bot. 412. Syme, E. B. ix. 44, t. 1414. Nyman, 682. Fl. Oxf. 284.

Native. Lacustral. Shallow streams, ditches, ponds, &c. Locally common. P. June-August.

First record. Oxford, Sir J. E. Smith, in *Herb. Brit. Mus.* 1800. Published as *P. densus* in *Russell's Cat.* 1839.

1. **Isis.** Near Lechlade. Near Wytham. Ashbury.

2. **Ock.** Marcham, *Walker*. Ferry Hinksey, *Dyer*. Uffington. Frilford. Radley. Lockinge. Wantage. Near Abingdon.

3. **Pang.** Pangbourn, *Newbould*. Bradfield. Near Tilehurst.

4. **Kennet.** In the Lambourn near Ham Mills, *Russell, l. c.* Sheffield. Kintbury. Near Walbury Hill, in Wigmoreash Pond, 912 feet. Newbury. Benham. Hampstead Marshall.

5. **Loddon.** Sonning Meadows, *Tufnail*. Near Shurlock Row. Near Wargrave. In Virginia Water. Bisham.

Sometimes the plant is very dwarfed, and an acute-leaved form also occurs.

P. densum occurs in all the bordering counties.

P. compressum, Linn. Sp. Pl. 127 (1753), and Fries, Koch, Nyman, Willkomm et Lange, Gr. et Godr., &c., but not of Linn. Herb.

P. zosterifolius, Schum. Enum. Pl. Saell. i. 50 (1801).

Top. Bot. 415. Syme, E. B. ix. 45, t. 1415. Nyman, 683. Fl. Oxf. 285.

Native. Lacustral. Rivers and canals. Locally common. P. June-August.

First record. *P. compressum*. Pondweed with a flat stalk grows plentifully about . . . Reading, Caversham, . . . *Milne and Gordon, Indigenous Bot.* 210, 1793. [Probably refers to this species.] *P. zosterifolius*, Isis at Oxford, M. A. Lawson in *Herb. Brit. Mus., Journ. Bot.* 16, 1871, and *Herb. Brit. Mus.* 1870.

2. **Ock.** Isis at Oxford, *Lawson, l. c.* Nuneham, as *P. gramineum*, and Ferry Hinksey, *Boswell*. Sandford, the author in *Rep. of Exch. Club*, 1885. Sandford, *Lawson*. Ifley, just below the Mill, fruiting freely. Near the University Boat House. Abundant in the Canal between Abingdon and Wantage, the author, *Rep. Bot. Exch. Club*, 1892.

3. **Pang.** Moulsoford. Streatley. Near Tilehurst.

5. **Loddon.** Near Sonning. Bray. Near Windsor.

P. compressum is recorded for Oxfordshire, Bucks, and Surrey.

[**P. ACUTIFOLIUS**, Link in Roem. et Schultes Syst. iii. 513 (1818).

Top. Bot. 415. Syme, E. B. ix. 46, t. 1416. Is recorded for Surrey, and is a plant which will probably be found in Berkshire in the southern reaches of the Thames.]

P. obtusifolius, Mert. et Koch, Deutsch. Fl. i. 855.

P. gramineus, Sm. E. B. t. 2253, not of Linn. Herb.

Top. Bot. 415 (Oxford). Syme, E. B. ix. 47, t. 1417. Nyman, 683. Fl. Oxf. 285.

Native. Lacustral. Lakes. Very local. P. July.

First record. Bulmarsh, '*P. heterophyllus*,' Mr. F. Tufnail, in *Fl. of Oxfordshire*, 1886.

5. Loddon. Bulmarsh, *Tufnail*. Rather common in some portions of Virginia Water both in Surrey and Berks, 1893.

I have not seen the Bulmarsh plant as the owner of the property refused me permission to go over his estate.

P. obtusifolius is recorded for Surrey and Hampshire.

P. Friesii, Ruprecht, Beitr. Pfl. Russ. iv. 43 (1845).

P. mucronatus, auct. *P. gramineum*, Sibth. Fl. Oxon. not of Linn.

P. compressum, E. B. t. 418, not of Linn.

Top. Bot. 414. Syme, E. B. ix. 48, t. 1418. Nyman, 683. Fl. Oxf. 285.

Native. Lacustral. Ponds, canals, shallow streams. Locally common. P. July. •

First record. The author in *Fl. Oxf.* 285, 1886.

1. Isis. Near Shrivenham. Near Wytham. Near Eynsham.

2. Ock. Marcham, *Fl. Oxf.* Common in the Canal between Abingdon and Wantage. Uffington. Ferry Hinksey. Near Iffley.

3. Pang. Moulsoford. Pangbourn.

4. Kennet. In the Kennet Canal. Hampstead Marshall, and in the Kennet. Near Aldermaston.

5. Loddon. White Knights' Lake, *Tufnail*.

The *P. compressum* of Milne and Gordon may possibly refer to this.

P. Friesii is recorded for all the bordering counties.

P. pusillum, Linn. Sp. Pl. 127 (1753). *Small Grass-leaved Pondweed.*

Top. Bot. 414. Syme, E. B. ix. 49, t. 1419. Nyman, 683. Fl. Oxf. 286.

Native. Lacustral. Rivers, ditches, ponds, &c. Fond of slow-running or stagnant water. Not uncommon. P. June-July.

First record. *Potamogeton Pusillum folio gramineum, caule rotundo*, in Thames, near Oxford, *Merrett's Pinax*, 97, 1666.

1. Isis. Near Shrivenham. Near Lechlade. Wytham.

2. Ock. Thames near Oxford, *Merrett*. Below Iffley Mill. Frilford. Wantage. Marcham. In the Canal between Abingdon and Wantage.

3. **Pang.** Near Moulsoford. Pangbourn. Tidmarsh.
4. **Kennet.** Kintbury, *Reeks in Britt. Contr.* Hampstead Marshall.
5. **Loddon.** Wargrave, *Melville*. Windsor, *Bolton King*. Bray. Haines Hill. Haws Hill.

P. pusillum is recorded for all the bordering counties.

[**P. trichoides**, Cham. et Schlecht. in *Linnaea*, ii. (1827) 175, var. *Trimmeri*, Casp. in *Linn. Soc. Journ.* viii. (1860) 273.

Top. Bot. 414. Syme, E. B. 51, t. 1420. Nyman, 683.

Is recorded for Surrey.]

P. pectinatum, Linn. Sp. Pl. 127 (1753). *Fennel-leaved Pondweed.*

Top. Bot. 413. Syme, E. B. ix. 52, t. 1422. Nyman, 684. Fl. Oxf. 286.

Native. Lacustral. Rivers, ponds, canals. Common. P. July-August.

First record. In great abundance at Caversham, *Milne and Gordon*, *Indigenous Bot.* 211, 1793.

Probably the following record also refers to this species. *Potamogeton Capillaceum capitulis ad alas trifidis*, Park. 1255-6. (In Thames near Oxford, *Merrett*, *Pinax*, 97, 1666. *P. pectinatus*, Mr. Bicheno. *Mavor's Agr. Berks*, 1809.

P. pectinatus is common in all the districts in the slower-moving streams. In the canal between Abingdon and Shrivenham it forms a considerable portion of the vegetation, and is found in the Thames at intervals from Lechlade to Windsor; also common in the Kennet Canal between Reading and Hungerford, and in the Loddon between Loddon Bridge and Sandford Mill rather frequently.

Mr. W. T. Dyer, in *Journ. Bot.* (1871) 147, remarked that it was 'the commoner segregate in the Oxford waters.'

P. pectinatum is recorded for all the bordering counties.

P. interruptus, Kitaibel in Schultes Oestr. Fl. ed. 2, i. 328 (1814).

P. flabellatus, Bab. Man. Brit. Bot. ed. 3, 343 (1851). *P. junceus*, Fl.

Oxf. 286. *P. zosteraceus*, Bab. Man. Brit. Bot. ed. 1, 325, not of Fries.

Top. Bot. 413. Syme, E. B. ix. 53, t. 1421. Nyman, 684. Fl. Oxf. 286.

Native. Lacustral. Rivers and swiftly flowing streams. Locally abundant, and found in all our larger streams. P. June-August.

First record. *Potamogeton millefolium seu foliis gramineis ramosum*, Raii. Syn. 61, in Thamesi prope Oxoniam, *Sherard*, *Herb. Oxf.* about 1700. *P. Pusillum folio gramineo, caule rotundo*, in Thames near Oxford, *Merrett*, *Pinax*, 1666, may also be this species. Precisely recorded by the author in *Rep. of Rec. Club of 1880*.

An interesting note on this species, by Mr. A. Fryer, who first gave a thorough definition of it, will be found in *Journ. Bot.* (1888) 297-299.

P. interruptus is recorded for all the bordering counties.

ZANNICHELLIA, Linn. Gen. n. 920 (Mich. 34).**Z. palustris**, Linn. Sp. Pl. 969 (1753). *Horned Pondweed.**Z. major*, Boenn. ex Reichb. in Moessl. Handb. ed. 2, iii. 1591.

Top. Bot. 423. Syme, E. B. ix. 56, t. 1425. Nyman, 684. Fl. Oxf. 286.
 Lacustral. Rivers, streams, and pools. Rather local. P. May-August.

First record. *Z. palustris*, in the neighbourhood of Oxford, has the stigmas frequently somewhat indented, *Bast. Phaen. Bot.* n. 164. 1835.

1. **Isis.** Wytham.2. **Ock.** Cothill. Marcham. Radley. Iffley. Uffington.3. **Pang.** Near Moulsoford. Standford Dingley.4. **Kennet.** Theale. Mortimer. Silchester. Shaw brickfields. Shefford.5. **Loddon.** Windsor, *Bolton King*. Roadside pond near Paper Mill, Wokingham, *Tufnail*. Shottesbrooke. Whistley Green. Pond near Knowl Hill.

Var. **MACROSTEMON** (Gay, ex Willk. & Lange, Prod. Fl. Hisp. i. 26, as a species). This is a much more branching plant than the type, having narrower leaves and four-celled anthers. It occurs in the Thames above Godstow and between Oxford and Iffley, and I have seen the same form near Newbury and in the canal near Marcham. See the *Report of Bot. Record Club* 1880 and 1881.

Willkomm and Lange say that it differs from the type by the sessile instead of slightly stalked umbel, and by the thick straight style, which in the type is bent and slender.

Var. **REPENS** (Boenn. Prod. Fl. Monast. 272, as a species).

This form grows in the sandy and muddy margins of shallow streams, as near Abingdon, and in a pond between Loddon Bridge and Wokingham.

Z. palustris is found in all the bordering counties.**Z. pedunculata**, Reichb. in Moessl. Handb. ed. 2, iii. 1591.*Z. dentata*, Willd. Sp. Pl. iv. 181, teste Willkomm and Lange.*Z. pedicellata*, Fries. Nov. Mant. iii. 133 (1842).

Top. Bot. 424. Syme, E. B. ix. 57, t. 1426. Nyman, 684.

Native. Lacustral. Brackish streams. Very rare. P. June-July.

First found in Berkshire by the author in 1891.

2. **Ock.** Marcham, in the saline meadow.

Z. pedunculata does not appear to be recorded for any inland bordering county.

CYPERACEAE, J. St. Hil. Exp. Fam. i. 62 (1805).

[**CYPERUS FUSCUS**, Linn. Sp. Pl. 46 (1753). Syme, x. 41, t. 1577.

Is found in Surrey and Hants, but doubts are expressed as to its being a native plant.]

[**C. LONGUS**, Linn. Sp. Pl. 45 (1753), not of Herb.*English Galingale.*

Syme, E. B. x. 41, t. 1578. Is recorded for Hants and South Wilts.]

ELEOCHARIS, R. Br. Prod. Nov. Holl. 224 (1810).*Heliocharis*, Lestib. Ess. Cyp. 41 (1819).**E. acicularis**, R. Br. l. c.*Slender Club Rush.**Scirpus acicularis*, Linn. Sp. Pl. 48 (1753).

Top. Bot. 442. Syme, E. B. x. 50, t. 1585. Nyman, 767. Fl. Oxf. 321.

Native. Paludal. Muddy bottoms or margins of ponds, canals, streams, &c. Local, but where it occurs it is usually abundant.

P. July–August.

First record. *Scirpus acicularis*, Mr. Rudge and Mr. Gotobed in *Bot. Guide*, 1805.

1. **Isis.** Near Eynsham Bridge, *Sibth.* Canal near Shrivenham. Margins of the Thames between Eynsham and Godstow.
2. **Ock.** Canal near Uffington, and between Wantage and Abingdon. Sparingly on Berkshire side of the Thames between Folly Bridge and Iffley in a barren state.
4. **Kenet.** Rather plentiful in the canal between Reading and Hungerford, especially about Padworth and Hampstead Marshall. The muddy bottom is in places covered with it, in the form *submersa*, Hj. Nilss.; see Norman Fl. Arct. Norv. 43 (1893): in this condition it does not flower. Portions brought up by the tow-rope of canal barges are easily recognized by the rhizome. Careful search along the banks will usually be successful in finding it in a fertile state.
5. **Loddon.** Bulmarsh Heath, *Rudge*. Banks of the Thames rare, *Gotobed*, *Bot. Guide*, 1805. Virginia Water, rather plentiful in places both in Surrey and Berks. In the lake near Sandhurst it also occurs in both counties.

The Binsey Common locality cited in Mr. Britten's *Contributions* is in Oxfordshire.

When the mud from the canal is dredged and scattered along the banks the previously submerged plant soon flowers and assumes the ordinary condition.

E. acicularis is recorded for all the bordering counties.**E. palustris**, R. Br. l. c.*Club Rush.**Scirpus palustris*, Linn. Sp. Pl. 47 (1753).

Top. Bot. 443. Syme, E. B. x. 51, t. 1586. Nyman, 767. Fl. Oxf. 320.

Native. Paludal. Shallow ponds, marshes, wet meadows, &c. Common and generally distributed. P. April-July.

First record. *S. equiseti capitulo majori*. Wet meadows near Oxford, *Dillenius* in *Herb. Oxf.* 1730. *Scirpus palustris*, Bulmarsh Heath, *Mr. S. Rudge* in *Herb. Brit. Mus.* 1800. *Eleocharis palustris*, wet meadow under Bisham Wood, *Mr. G. G. Mill* in *Phyt.* i. 994, 1843. Without locality in *Russell's Newbury Cat.* 1839.

This plant is too frequent throughout the county to need a list of localities. Round the margins of many of our ponds it forms a conspicuous zone of vegetation. It varies considerably in size; a small form from the Wytham fields and Marcham meadows is very probably the var. *MINOR* (Gaud. Fl. Helv. i. 110, under *Scirpus*). The spike is ovate-lanceolate, and fewer flowered than the type, and the culm slightly curved at the base. A large form occurs in ponds, &c., as at Wargrave and Radley.

In a pond on the heath near Sandhurst I found viviparous specimens in which the young plant, six inches in size, remained attached to the parent.

E. palustris is found in all the bordering counties.

E. uniglumis, Schult. Mant. ii. 88 (1824), sub *Heleocharis*.

Scirpus uniglumis, Link, Jahr. d. Gew. i. 3 (1818), 77 (teste Richter, the date is given 1820 in Index Kewensis). *E. palustris*, var. *uniglumis*.

Top. Bot. 443. Syme, E. B. x. 52, t. 1587. Nyman, 767. Fl. Oxf. 321. Native. Paludal. Marshy meadows. Very local. P. July.

First record. Near Botley by Mr. W. T. Dyer in *Journ. Bot.* 75, 1872.

1. *Isis*. Mr. A. G. More . . . agrees with me in certainly referring to [this species] a plant collected in a marshy field on the north side of the Seven Bridge Road near Botley, Berks, *W. T. Dyer*, l.c. [Probably in Oxfordshire, as the Berkshire boundary is now taken from the farthest stream on the Botley Road.] In a meadow near Wytham and in a meadow on the west side of the boundary stream north of the Botley Road.

2. *Ock*. On the Berkshire side of the water near Ferry Hinksey, where Mr. H. Baker has also found it.

[Also gathered in the meadows above Godstow in Oxfordshire by the Rev. L. V. Lester.]

E. uniglumis, which is made a synonym of *E. palustris* by Mr. C. B. Clarke and in *Index Kewensis*, is only recorded for Hampshire of the bordering counties.

E. multicaulis, Sm. Engl. Fl. i. 64.

Scirpus multicaulis, Sm. Fl. Brit. i. 48 (1800) p.p. E. B. t. 1187.

Top. Bot. 444. Syme, E. B. x. 53, t. 1588. Nyman, 767. Fl. Oxf. 321.

Native. Paludal. Marshes, wet places in heathy districts, &c. Local and rather rare in the north but more frequent in the south of the county. P. July–August.

First record. *Eleocharis multicaulis*, the author in *The Flora of Oxfordshire*, 321, 1886.

1. **Isis.** Bog in Wytham Wood and in Wytham Meadow.
2. **Ock.** Near South Hinksey. Cothill. Frilford. Near Abingdon.
3. **Pang.** Cold Ash Common.
4. **Kennet.** Mortimer, *Tufnail*. Greenham Common. Burghfield. Snelmore. Silchester. Aldermaston.
5. **Loddon.** Sandhurst. Long Moor. Risely. Windsor Great Park. Bagshot Heath. Easthampstead. Broadmoor. Sunningdale. Near Wellington College, where a slightly viviparous form was found in 1892. Near Bracknell. Owls Moor.

A digynous form occurs (var. *DIGYNA*, Gren. et Godr. Fl. Fr. iii. 381).

E. multicaulis is recorded for all the bordering counties except Bucks, but I have found it at Burnham in that county.

SCIRPUS, Linn. Gen. n. 62 (Tournefort, Inst. t. 300).

S. pauciflorus, Lightf. Fl. Scot. ii. 1078 (1777).

Eleocharis pauciflora, Link, Hort. Berol. i. 284, not of Watson.

Top. Bot. 444. Syme, E. B. x. 54, t. 1589. Nyman, 765. Fl. Oxf. 330.

Native. Paludal. Marshes, heaths, &c. Local. P. June–August.

First recorded by the author in *Rep. of Bot. Rec. Club*, 1880, and *Journ. Bot.* 251, 1881.

1. **Isis.** Wytham.
2. **Ock.** In a marshy meadow between South Hinksey and the Abingdon Road, *Druce*, l. c. Near Marcham. Cothill.
4. **Kennet.** Burghfield. Greenham.
5. **Loddon.** Sunninghill. Bagshot Heath. Wellington. Long Moor. Finchampstead.

S. pauciflorus is recorded for all the bordering counties.

S. caespitosus, Linn. Sp. Pl. 48 (1753), et Herb.

Top. Bot. 445. Syme, E. B. x. 55, t. 1590. Nyman, 765. Fl. Oxf. 319.

Native. Ericetal. Heaths. Absent from the Isis, Ock, and probably from the Pang districts; local in the Kennet drainage, but abundant in the heathy district round Sandhurst. P. April–August.

First record. *Juncus parvus palustris, cum parvis capitulis Equiseti*, Mr. Doody in *Ray's Syn.* 346, 1696. Wokingham Heath, Mr. Ed. Forster in *Herb. Brit. Mus.* about 1830.

4. **Kennet.** Burghfield. Mortimer Common.
5. **Loddon.** Bagshot Heath, Doody, l. c. Wokingham Heath, Ed.

Forster. Wellington College. Sandhurst. Finchampstead. Long Moor. Easthampstead Plain. Broadmoor. Crowthorn. Near South Park, Sandhurst. Near Sunningdale. Windsor Great Park.

In shady heaths the plant becomes much larger than the so-called var. *nemorosus*, Roth. See Ray, *Syn. l.c.*

S. caespitosus is recorded for Surrey, Hants, and Wilts, and with some doubt from East Gloucestershire. It is absent from Oxfordshire.

[*S. NANUS*, Spreng. Pugill. i. 4 (1813), not of Poit. *S. parvulus*, Roem. & Schnlt. Syst. ii. 124 (1817). Syme, E. B. x. 56, t. 1591, and

[*S. CERNUUS*, Vahl, Enum. ii. 245 (1806). *S. Savii*, Sebast. & Maur. Fl. Rom. Prod. 22. *S. setaceus*, Linn. Mant. 321, et Herb. Syme, E. B. x. 58, t. 1593, are semi-maritime species found in South Hants, which are not likely to be found in Berkshire.]

S. fluitans, Linn. Sp. Pl. 48 (1753), and Herb. *Floating Club Rush.*

Isolepis fluitans, R. Br. Prod. Nov. Holl. 221 (1810). *Eleogiton fluitans*, Link, Hort. Berol. i. 284.

Top. Bot. 446. Syme, E. B. x. 57, t. 1592. Nyman, 766. Fl. Oxf. 320. Native. Lacustral. Pools and ditches in heathy places. Probably absent from the north of the county, and rare in the central area, but locally common in the ponds on the heathy portion of the Loddon district. P. May-July.

First recorded without locality in *Britt. Contr.* 1871, probably found by Mr. J. C. Melvill.

4. Kennet. Mortimer, Floating plants in the Kennet near Burghfield Mill, *Tufnail*. Ufton Pond. Greenham Common. Crookham. Aldermaston Decoy. Burghfield.

5. Loddon. Bulmarsh. Pond at Hurst, *Melvill*. Sandhurst. Long Moor. Ascot. Bagshot. Broadmoor. Finchampstead. Spout Pond. Heath Pool. In Virginia Water and in other ponds in Windsor Great Park.

By the margins of ponds, as at Mortimer (*Tufnail*), it is found in a condensed semi-caespitose form.

S. fluitans is recorded for all the bordering counties except East Gloucestershire.

S. setaceus, Linn. Sp. Pl. 49 (1753), p.p. not of Herb.

Isolepis setacea, R. Br. l. c. 222.

Top. Bot. 442. Syme, E. B. x. 60, t. 1594. Nyman, 766. Fl. Oxf. 320. Uliginal. Marshy places, on sandy or gravelly soil. Local and rare. P. July-August.

First found at Wootton by Mr. Boswell about 1864. See *Britt. Contr.* 1871.

1. Isis. Wytham.

2. **Ock.** Wootton, *Boswell*. Frilford, *Fl. Oxf.* South Hinksey. Marcham.

4. **Kennet.** Burghfield. Aldermaston.

5. **Loddon.** Damp heathy spot near Hurst Grove, *Melville*. Near Wellington College, 1892, *Tufnail*. Sandhurst. Ascot. Near Jouldern's Ford.

Recorded in Britten's *Contributions* (without localities) for the districts M. N. and W. of Berkshire.

S. setaceus is recorded for all the bordering counties.

[**S. Holoschoenus**, Linn. Sp. Pl. 49 (1753), where the name is written *Holoscoenus*, Syme, E. B. x. 61, t. 1597, is on very old authority for Hants, but has not recently been found.]

S. lacustris, Linn. Sp. Pl. 48 (1753), et Herb. *Bulrush*.

Top. Bot. 439. Syme, E. B. x. 63, t. 1596. Nyman, 764. *Fl. Oxf.* 319. Native. Lacustral. Rivers, canals, and ponds. Common in all the districts. P. July–August.

First record. Thames near Oxford, *Sir Jos. Banks in Herb. Brit. Mus.* 1760. Ditches at Hagbourn and Blewbury, Mr. J. Lousley in *Russell's Cat.* 1839. Reported as frequent by Mr. G. G. Mill in *Phyt.* i. 994, 1843.

In the Wytham ditches and near Reading a small form occurs, and in a pond in Wytham Park unusually tall specimens have been observed, some being eleven feet above the water. A fertile form, about thirteen inches high, with a few closely-aggregated spikelets and numerous erect leaves, and a stem about the thickness of ordinary *Juncus effusus*, was found on mud dredged from the river near Oxford. A glaucous form from the Wytham ditches has the nut more compressed than in typical *lacustris*, but it has three stigmas, so I have placed it under this species.

S. lacustris is common in all the bordering counties.

[**S. TABERNAEMONTANI**, Gmel. *Fl. Bad.* i. 101 (1805).

S. glaucus, Sm. E. B. t. 2321 (1812). Syme, E. B. 64, t. 1597.

Is recorded for Surrey, Hants, and Wilts. I have made repeated search for this about Marcham, but have been unable to find it there or elsewhere in the county. The glaucous form alluded to under the preceding species is allied to this species, which Grenier and Godron consider is only a digynous var. of *S. lacustris*.]

[**S. CARINATUS**, Sm. E. B. t. 1983 (1809), *Engl. Fl.* i. 60 (not of Asa Gray), Syme, E. B. x. 64, t. 1598, and **S. TRIQUETER**, Linn. *Mant.* i. 29 (there spelled *triquetrous*), Syme, E. B. t. 1599, recorded for Surrey, are plants which grow by tidal rivers, and are scarcely to be expected so high up the Thames as Old Windsor.]

S. maritimus, Linn. Sp. Pl. 51 (1753), et Herb.

Top. Bot. 441. Syme, E. B. x. 68, t. 1601. Baxt. t. 264. Nyman, 763. *Fl. Oxf.* 319.

Native. Paludal. Small stream-sides. Very local. P. July–Sept.

First record. Sonning, Mr. S. Rudge in *Herb. Brit. Mus.* 1800, and Mr. F. Walker in *Journ. Bot.* 55, 1881.

2. Ock. Near Marcham, F. Walker, *Herb. Brit. Mus. Herb.* 1873, and *Journ. Bot.* l. c.

5. Loddon. Near Sonning, Rudge.

I have been unable to find this plant near Sonning, and even if the record be correct, it may have been gathered by Mr. Rudge on the Oxfordshire side of the river. At Marcham it is still plentiful along a deep ditch which borders the east side of the brackish meadow. I have found *Zannichellia pedunculata*, *Z. palustris* (not typical), and *Ranunculus trichophyllus* in the same stream, the banks of which have a quantity of *Apium graveolens*.

Both forms of this *Scirpus* occur at Marcham, namely, var. *a*, LAXUS, Vis. Fl. Dalm. 109, the type, and var. *b*, CONGLOBATUS, S. F. Gray, Nat. Arr. ii. 76 (1821), in which the panicle is simple, conglomerate, the spikes being sessile.

S. maritimus is recorded for Hants and Surrey only of the bordering counties.

S. sylvaticus, Linn. Sp. Pl. 51 (1753), et Herb. Wood Club Rush.

Top. Bot. 440. Syme, E. B. x. 69, t. 1602. Nyman, 763. Fl. Oxf. 319. Native. Paludal. Marshy places. Very local. P. June–August.

First record. *Cyperus gramineus*, Lob. On ye west side [of Oxford] near Gloster Gate, July 6, 1622, Mr. J. Goodyer's MS. Prope Hinksey, (Bobart) Morison, *Hist. Ox.* iii. 237, 1699.

1. Isis. [Near Gloster Gate, Goodyer. The locality was possibly in Oxfordshire, but the plant is not there now.]

2. Ock. *Cyperus longus latifolius locustis plurimis minoribus et brevioribus* . . . prope Hinksey haud longe ab Oxonio ad ripas fluvii Thamisis, (Bobart) Morison, l. c. Near Hanney, Wait. It still occurs sparingly near South Hinksey, and is abundant in the valley in which is the Rifle Range, and where this beautiful species forms a considerable portion of the vegetation.

5. Loddon. Near Sonning, Rudge in *Bot. Guide and Mavor's Agr. Berks.* Windsor, Macreight. Near Wellington College, A. Grey in *Well. Coll. List.* By the Loddon, near Sindlesham Mill, Tufnail. Rather plentiful on both sides of the Blackwater near Thatcher's Ford.

S. sylvaticus, one of our most local species, is recorded for all the bordering counties.

S. caricis, Retz, Prod. Fl. Scand. 11 (1779). Compressed Rush Grass.

S. compressus, Pers. Syn. i. 66. *Schoenus compressus*, Linn. Sp. Pl. 43 (1753). *Blysmus compressus*, Panz. in Link, Hort. Berol. i. 278.

Top. Bot. 438. Syme, E. B. x. 48, t. 1583. Baxt. t. 308, from an Oxfordshire plant. Fl. Oxf. 318-9. Nyman, 763.

Native. Paludal. Marshy meadows. Very local, but common where it occurs. P. June-August.

First record. *Schoenus compressus*. Plentiful about Newbury, Mr. Bicheno, *Mavor's Agr. Berks*, 1809.

2. *Ock*. *Blysmus compressus*. In a boggy place between South Hinksey and the Abingdon Road, *Baxt. Phaen. Bot.* 308. [Very rare, if still existing.] Abundant in the saline meadow at Marcham. On Abingdon Racecourse, and in fields between it and Marcham.

4. *Kennet*. Plentiful about Newbury, Mr. Bicheno. In meadows between Newbury and Hampstead Marshall. Bagnor Marsh. Near Chilton Foliat I gathered specimens fifteen inches high.

S. caricis is recorded for all the bordering counties except Bucks.

ERIOPHORUM, Linn. Gen. n. 63.

[*E. VAGINATUM*, Linn. Sp. Pl. 52 (1753), et Herb. *Hare's-tail Rush*.

Syme, E. B. x. 71, t. 1604. Is recorded for Surrey and Hants, but is extinct in Oxfordshire, and requires confirming for E. Gloucestershire.]

[*E. GRACILE*, Koch in Roth, Cat. ii. 259 (1799).

Syme, E. B. x. 74, t. 1606. Has been found in Surrey and Hants; it may yet reward the searcher on the boggy places of the Bagshot Sands in Berkshire.]

E. angustifolium, Roth, Tent. Fl. Germ. i. 24 (1788), and N. Beitr. i. 94. *Cotton Grass*.

Gramen Tomentarium, Ger. Em. 29. *E. polystachion*, Linn. Herb., and Sm. Engl. Fl. i. 67.

Top. Bot. 447. Syme, E. B. x. 73, t. 1605. Nyman, 761. Fl. Oxf. 318. Native. Uliginal. Bogs, marshes. Local, but widely distributed in the heathy districts. P. April-June.

First record. Bulmarsh Heath, Mr. S. Rudge in *Herb. Brit. Mus.* 1800. *E. angustifolium*, without locality in *Russell's Cat.* 1839

2. *Ock*. Marcham, *Walker*. Frilford. Abingdon. Cothill. Boar's Hill.

3. *Pang*. Cold Ash Common.

4. *Kennet*. Greenham Common, *Rupert Jones*. Burghfield meadows, *Tufnail*. Snelsmore. Aldermaston. Near Thatcham. In the Kennet meadows between Newbury and Hampstead Marshall.

5. *Loddon*. Ascot, *Wilkin*. Crazey Hill, in a meadow near the spring, *Stanton*. Common about Wellington College, *Penny*. Bulmarsh, *Rudge*. Finchampstead. Near Bracknell. Bagshot Heath. Long Moor. Sunningwell Bog. Sandhurst. Broadmoor. Easthampstead Plain. White Moor Bog. Coleman's Moor.

E. angustifolium occurs in all the bordering counties.

- E. latifolium**, Hoppe, Bot. Taschenb. (1800) 108 ex syn. *E. polys'achion*, Linn. Sp. Pl. 52 (1753) p.p., not of Herb. *E. pubescens*, Sm. E. B. Suppl. t. 2633, and Eng. Fl. i. 68. *E. vulgare*, Pers. Syn. i. 70 (1805). Top. Bot. 447. Syme, E. B. x. 75, t. 1608. Nyman, 761. Fl. Oxf. 318. Native. Uliginal. Bogs and marshes, much more local than the preceding species and rather rare, preferring lowland marshes on a calcareous soil. P. May-June.
- First record. *Gramen tomentosum*, pone Chilswell, Dr. Dillenius, in Herb. Oxf. about 1730.
2. Ock. Tubney, the author in Rep. of Bot. Rec. Club, 1886. Above Childswell Farm, Dillenius (recently destroyed). Frilford. Cothill. Near Ferry Hinksey. Near Marcham.
4. Kennet. Theale, Tufnail.
5. Loddon. Coleman's Moor, very rare. I think I have seen it at Sunningwell, but I have no note.
- E. latifolium* is recorded for Oxfordshire, Surrey, and Hants.

RYNCHOSPORA, Vahl, Enum. ii. 229 (1806).

Triodon, Rich. ex Pers. Syn. i. 60, in nota 1805.

- [**E. fusca**, [Dryand.] in 4it. Hort. Kew, ed. 2, i. 127 (1810). *Schoenus fuscus*, Linn. Sp. Pl. ed. 2, 1664 (1762). *R. alba*, var. *b*, Vahl. l. c. Syme, E. B. x. 45, t. 1581. Is found in Surrey and South Hants, and should be looked for on the Bagshot Sands; hitherto I have been unsuccessful. Dryander, following Willdenow, wrote *Rhynchospora fusca*. Roemer and Schultes were apparently the first authors to write *Rynchospora fusca* in Syst. ii. 88 (1817).]
- E. alba**, Vahl, Enum. ii. 236, sine var. *b* (1806). *White Beak Rush*. *Schoenus albus*, Linn. Sp. Pl. 44 (1753).
- Top. Bot. 437. Syme, E. B. x. 46, t. 1582. Nyman, 761. Fl. Oxf. 318. Native. Ericetal and paludal. Marshy meadows, boggy places on heaths. Local, but rather common where it occurs. P. June-August.
- First record. *Gramen junceum leucanthemum*. White floured rush-grasse. I never found this but once, and that was in the company of M. Thomas Smith and M. James Clarke, Apothecaries of London; we riding into Windsor Forest upon the search of rare plants, and we found this upon a bogge neere the highway side at the corner of the great parke, Johnson, Gerard's Herbal, 30, 1633. The locality may have been in Surrey.
2. Ock. Meadows between South Hinksey and the Abingdon Road, Bolton King, 1884. Now lost; I have repeatedly tried to find it.
4. Kennet. Bog on Snelsmore Common, Russell's Cat. Mortimer, Tufnail. Greenham Common. It is still plentiful on Snelsmore Common.

5. **Loddon.** Bog near Windsor Great Park, *Johnson's Gerard*. On the peat bogs in Sunningwell in great plenty, *Lightfoot*, 1762. *Schoenus albus*, Bulmarsh Heath, *Rudge in Bot. Guide*. Windsor Great Park, *Gotobed in Bot. Guide*. Bagshot Heath, *Doodly in Ray*, *Syn.* ed. 2, 345 (1696). Wellington College, *Penny*. Sunninghill, *Sir J. Banks in Herb. Brit. Mus.* 1773. Near Sandhurst. Easthampstead Plain. Broad Moor. Wild Moor Bottom. Near Bracknell. Crowthorn.

The var. **SORDIDA**, Syme, l. c., distinguished by the pale-brown spikelets, also occurs, as at Broadmoor, &c.; but it merges imperceptibly into the type, and may not be identical with the *sordida* of continental authors.

Rhynchospora alba, which is now extinct in Oxfordshire, is recorded for Surrey, Hants, and Wilts.

SCHOENUS, Linn. Gen. n. 60 (*Cyperella*, Mich. 31).

- S. nigricans**, Linn. Sp. Pl. 43 (1753), and Herb. *Bog Rush*.
Top. Bot. 436. Syme, E. B. x. 43, t. 1529. Nyman, 760. Baxt, t. 268. Fl. Oxf. 317.
Native. Uliginal. Bogs and marshes. Very local. P. June-July. First recorded from near Oxford in bogs in *Dr. Lightfoot's MSS.* 1770, and by Mr. Bicheno in *Mavor's Agr. Berks*, 1809.
2. **Ock.** Near Marcham, *Walker*. Frilford Bog, plentiful. Abundant in Cothill Marsh.
4. **Kennet.** Near Newbury, *Bicheno* [the place was doubtless Greenham Common, where it still occurs]. Kintbury, *Reeks*.
5. **Loddon.** Bagshot Heath, *Dickson's Fasc.* and *Lond. Fl.* 88.
Schoenus nigricans is recorded for Oxfordshire, Buckinghamshire, Surrey, and Hants.

[**CLADIUM JAMAICENSE**, Crantz, Inst. i. 362 (1766). *Schoenus Mariscus*, Linn. Sp. Pl. 42 (1753). *Cladium Mariscus*, R. Br. Prod. Nov. Holl. 236. Syme, E. B. x. 44, t. 1580. Is recorded for Hampshire.]

CAREX, Linn. Gen. n. 928 (*Cyperoides*, Tournefort, Inst. t. 299).

- C. dioica**, Linn. Sp. Pl. 972 (1753).
Top. Bot. 448. Syme, E. B. x. 78, t. 1610. Nyman, 784. Fl. Oxf. 331.
Native. Uliginal. Bogs. Rare. P. May-June.
First record. *Gr. Cyperoides spica echinata simplic.* Two miles southwards from Oxford, in the bogs, *Merrett, Finax*, 52, 1666. *Gramen cyperoides minimum Ranunculi capitulo rotundo*, frequently found on the Bogs on the West side of Oxford, *Bobart in Ray, Syn.* 235, 1690. *C. dioica*, scarce, *Dr. Noehden, Mavor's Agr. Berks*, 1809.
2. **Ock.** See *Merrett* and *Bobart*, but it is rare and local now. *Wootton, Boswell*. Cothill. Frilford. Tubney.

3. Pang. Standford Dingley, *F. T. Richards*.
4. Kennet. Burghfield. Aldermaston. Greenham.
5. Loddon. Near Sandhurst.

My notes of this plant for the last three districts have been mislaid, and the above account is therefore imperfect.

C. dioica is recorded for Surrey, Hants, and Oxfordshire.

C. pulicaris, Linn. Sp. Pl. 972 (1753), and Herb. *Flea Sedge*.

Top. Bot. 449. Syme, E. B. x. 80, t. 1612. Nyman, 783. Fl. Oxf. 321. Native. Paludal. Bogs, marshy places, wet heaths. Local. P. June-July.

First recorded by Dr. Noehden in *Mavor's Agr. Berks*, 1809.

2. Ock. Marcham, *Walker*. Frilford Heath. Near Childswell Farm. Cothill. Near Tubney. Rifle Butts Range, South Hinksey. Bog above Ferry Hinksey. Wootton.
3. Pang. Near Fence Wood. Cold Ash Common. Bucklebury.
4. Kennet. Greenham Common. Aldermaston. Burghfield. Snelsmore Common. Mortimer. Bagnor Marsh. Tilcombe Green.
5. Loddon. Bulmarsh, *Tufnail*. Small Brook Marsh, *Well. Coll. List*. Sunningwell Bog. Sandhurst. Broadmoor. Long Moor. Windsor Park. Easthampstead.

C. pulicaris is recorded for all the bordering counties.

C. disticha, Huds. Fl. Angl. 347 (1762), not of ed. 2, 403.

C. intermedia, Good. in Linn. Soc. Trans. ii. 154 (read in 1792).
C. spicata, Pollich, Hist. Pl. Pal. 562 (1777). *C. arenaria*, Leers, Fl. Herborn. 195, not of Linn.

Top. Bot. 452. Syme, E. B. x. 85, t. 1617. Nyman, 782. Fl. Oxf. 331. Native. Paludal. Low alluvial meadows, marshes, &c. Rather common. P. May-June.

First record. *C. intermedia*, Dr. Noehden, *Mavor's Agr. Berks*, 1809.

1. Isis. In the Wytham meadows. In the Thames meadows near Bablock Hythe. Cumnor. Near Lechlade.
2. Ock. Hinksey, Thames near Ifley, *Dyer*. Wootton, *Boswell*. Cothill. Marcham. Abingdon Racecourse. In Neat's Meadow near Abingdon. Kennington. Radley. Wantage. Near Wittenham.
3. Pang. Tidmarsh, *Hon. J. L. Warren*. Moulsoford. Near Bradfield.
4. Kennet. Mortimer, *Tufnail*. Southcote. Padworth. Aldermaston. Hampstead Marshall. Bagnor. Theale. Benham.
5. Loddon. Wokingham, by the railway, with var. *longibracteata*, *Tufnail*. Hurley. Sonning. Coleman's Moor. Farley Hill. Sandhurst. Windsor Park. Ruscombe. Maidenhead.

Var. *LONGIBRACTEATA* (Schleicher, Cat. Pl. Helv. ed. 4, 11 (1815), as a species), Druce in Journ. Bot. (1890) 232. As the name suggests, it has

a long leafy bract, and the inflorescence is more interrupted than in the type; it occurs in the Coleshill and Wytham meadows, near Abingdon (see *Rep. Bot. Exch. Club*, 1892), at Padworth, near the Loddon, &c.; it has much of the appearance of *C. repens*, Bell.

The plant (*forma interrupta*) with interrupted spikes is not rare; an extreme form has been seen in the Abingdon meadows.

The fruits are sometimes found in a hypertrophied condition, probably from the attack of a gall insect.

C. disticha is found in all the bordering counties.

[*C. diandra*, Schrank in Act. Acad. Mogunt (1782) 49, not of Roth.

C. teretiuscula, Good. in Linn. Soc. Trans. ii. 163 (1792).

Syme, E. B. x. 87, t. 1619. Is recorded for Surrey and Hampshire, and should be found in the wet bogs about Sandhurst; hitherto it has eluded me.]

[*C. paradoxa*, Willd. in Schrift Naturf. Fr. Berl. (1794) 30.

Syme, E. B. x. 89, t. 1621. Although not recorded for any of the bordering counties, it should be looked for as being a not unlikely plant to occur. It is found in Middlesex.]

[*C. arenaria*, Linn. Sp. Pl. 973. Is recorded on the authority of Dr. Noehden in *Mavor's Agr. Berks*, 1809, but of course erroneously.]

C. paniculata, Linn. Amoen. Acad. iv. 294 (1759). Sp. Pl. ed. 2, 1383 (1762), and Herb. *Tussock Sedge*.

Top. Bot. 456. Syme, E. B. x. 90, t. 1622. Nyman, 781. Fl. Oxf. 333. Native. Paludal. Sides of rivers, canals, streams, and ponds. Osier-holts, damp woods, and marshes. Locally abundant, but absent from extensive areas of the county. P. April-June.

First recorded by Dr. Goodenough in *Linn. Soc. Trans. l. c.* 1792.

2. Ock. Marcham, *Walker*. Denchworth, *Wait*. Frilford. Abundant at Cothill. Abundant in marsh between Cothill and Abingdon.

3. Pang. Plentiful near Tidmarsh. Near Bradfield. Bucklebury. Pangbourn. Standford Dingley.

4. Kennet. Ham Marsh, *Russell's Cat.* 1839. Abundant at Aldermaston Decoy. Greenham Common. Theale. Shefford, abundant by the Lambourn between the villa and Weston. Padworth, canal-side. Aldermaston. Hampstead Marshall. Mortimer. Abundant in the water-meadows between Kintbury and Newbury. Benham. Southcote. Bagnor Marsh, abundant.

5. Loddon. Virginia Water, *Goodenough*. Wokingham, *Watson*, *Herb. Kew.* Boosey Hill. Bracknell. Sandhurst. East-hampstead. Windsor Park. Finchampstead.

C. paniculata is a very variable sedge. A form with very long spike-like panicle is the var. *SIMPLEX*, S. F. Gray, *Nat. Arr.* ii. 46 (1821).

It occurs at Wokingham, *Watson, Herb. Kew.*, Wellington College Station, *Tufnail*, at Greenham Common, Aldermaston, Cothill, &c.; but all gradations between this and the form with extremely branching panicle, var. *composita*, S. F. Gray, l.c., are found. In the Greenham and Cothill plants, which I have placed under var. *simplex*, the glumes are very pale; these are the var. *PSEUDO-BOENNINGHAUSIANA*, *Watson*.

The tussocks of *C. paniculata*, in the Pang valley near Bradfield, and in the Lambourn valley near Bagnor and Shefford, are a striking feature in the surrounding vegetation, many being more than a foot high and proportionately broad.

C. paniculata is found in all the bordering counties.

C. vulpina, Linn. Sp. Pl. 973 (1753). *Fox Sedge*.

Gramen palustris Cyperoides, Ger. Em. 21.

Top. Bot. 455. Syme, E. B. x. 91, t. 1623. Nyman, 781. Fl. Oxf. 329. Native. Paludal. Sides of canals, rivers, and ditches, marshes and wet places. Common and widely distributed. P. May-September. First recorded by Dr. Noehden in *Mavor's Agr. Berks*, 1809. Common about Marlow, *Mill in Phyt.* i. 994, 1843.

Var. *NEMOROSA* (Rebent. ex Boott. Ill. Carex, iii. 122), *Vignea nemorosa*, Reichb. Fl. Germ. Exc. 59 (1833), is not unfrequent; it has been noted from Coleshill, Appleton, Cumnor, Marcham, Kennington, Southcote, Coleman's Moor, Ruscombe, &c.

The forms described by S. F. Gray in *Nat. Arr.* ii. 47, as var. *decomposita* with awned bracts and compound panicles, var. *aristata* with branched panicle and awned bracts, and *acuta* with branched panicle and acute bracts, have also been noticed. The plant with very compact head of panicles appears to be the var. *crassior*, Anders. Cyperac. Scand. 66, 1849. I have seen it near Hurst. A plant with an interrupted slender spike-like panicle, in which the glumes were tinged with russet brown, suggested a possible hybrid with *C. disticha*; it was seen near Ruscombe.

The fruit is often malformed from the attack of an insect which causes it to become hypertrophied into a horn-like growth.

C. vulpina is found in all the bordering counties.

C. muricata, Linn. Sp. Pl. 974 (1753).

C. spicata, Huds. Fl. Angl. 353, not of Linn.

Top. Bot. 453. Syme, E. B. x. 93, t. 1624. Nyman, 781. Fl. Oxf. 329. Native. Septal. Ditches, sides of canals and rivers, and hedge-lanks in dry situations. Not uncommon. P. May-June.

First record. Sonning, *Mr. S. Rudge, Herb. Brit. Mus.* 1800 (a scrap of *C. divulsa* is on the same sheet). *C. muricata*, Dr. Noehden, *Mavor's Agr. Berks*, 1809.

1. **Isis.** Idstone. Coleshill. Appleton.
 2. **Ock.** Ferry Hinksey, *Boswell*. Denchworth, *Wait*. Marcham. South Hinksey. Cothill. Uffington. Frilford. Near Cholsey.
 3. **Pang.** Westbrook. Hampstead Norris, *W. M. Rogers*. Ashampstead. Compton. Hermitage. Ashridge. Bradfield. Bucklebury. Frilsham. Oarebury Hill Wood, &c.
 4. **Kennet.** *Russell's Cat.*, 1839. Mortimer, *Tufnail*. Brimpton. Aldermaston. Burghfield. Newbury. Hungerford. Lambourn. Theale.
 5. **Loddon.** Sonning, *Rudge*. Bisham Wood, &c., *Mill*. Old Windsor, *Winch MSS.* Hurst, *Melville*. Abundant by roadside near Maidenhead. Spencer's Wood Common. Windsor Park. Early. Winkfield. Waltham. Sandhurst. Warren Row. Ruscombe.
- The more frequent form is that called var. *compacta*, Syme, l.c.

Var. **VIRENS**, Koch, Syn. Fl. Germ. 751 (1837), which has a more interrupted spike and may be a fertile hybrid of *C. muricata* and *divulsa*, occurs at Hurst, *Melville*, Ruscombe, Coleshill, &c. It is the *C. divulsa*, Gaud. Fl. Helv. vi. 47, not of Stokes and Goodenough.

C. muricata also occurs with an interrupted spike, without any sign of *C. divulsa* parentage, and various other modifications in the spike are also found.

C. muricata occurs in all the bordering counties.

C. divulsa, Stokes in With. Bot. Arr. ed. 2, 1035 (1787) and Good. l.c.

C. canescens, Huds. Fl. Angl. ed. 2, 405, not of Linn.

Top. Bot. 454. Syme, E. B. x. 94, t. 1625. Nyman, 781. Fl. Oxf. 330. Native. Septal. Hedge-banks, woods, &c. Common in the chalky districts. It also occurs in scattered localities throughout the county. P. May-June.

First record. An unnamed specimen from Sonning on the sheet with *C. muricata*, *Mr. S. Rudge in Herb. Brit. Mus.* 1800. Botley, *H. Boswell*, about 1860.

1. **Isis.** Shrivenham.
2. **Ock.** Near Botley, *Boswell*. Cothill. Wootton. Blewbury. Chilton.
3. **Pang.** Unwell Wood, *Lawson in Herb. Oxf.* Pangbourn, *Boswell*. Langley, Hampstead Norris, *W. M. Rogers*. Lower Basildon, *Tufnail*. Tilehurst. Tidmarsh. Bucklebury. Ashampstead. Hermitage. Yattendon. Bradfield. Compton. East Ilsley. Aldworth. Frilsham. Fence Wood.
4. **Kennet.** Beedon, *W. M. Rogers*. Mortimer West. Newbury. Kintbury. Pebble Hill. Hungerford. Lambourn. Near Reading. Near Snelsmore. Inkpen.
5. **Loddon.** Near Reading, *Boswell*. Wargrave. Ruscombe. Shur-

lock Row. Shinfield. Arborfield. Coleman's Moor. Very fine near Wokingham. Bearwood. Winkfield. Cookham. Windsor Park. Finchampstead. Warren Row. Near Park Place.

C. divulsa is found in all the bordering counties.

C. echinata, Murr. Prod. Stirp. Gott. 76 (1770).

C. stellulata, Good. in Linn. Soc. Trans. l.c. 144 (1792). *C. muricata*, Huds. Fl. Angl. 349, not of Linn.

Top. Bot. 450. Syme, E. B. x. 94, t. 1626. Nyman, 780. Fl. Oxf. 328.

Native. Uliginous. Bogs, wet heaths, &c. Local. Rare in the north of the county, but not unfrequent in the heathy district. P. May-June.

First record. *C. stellulata*, Dr. Noehden in *Mavor's Agr. Berks*, 1809.

1. **Isis**. Wytham.

2. **Ock**. Bagley, *Baxter MSS.* 1823. Boar's Hill. Frilford. Cothill. Tubney.

3. **Pang**. Cold Ash. Oare. Bucklebury. Fence Wood.

4. **Kennet**. Mortimer, *Tufnail*. Burghfield. Aldermaston. Greenham. Snelsmore. Newbury Wash. Inkpen. Silchester. Padworth.

5. **Loddon**. Bulmarsh, *Tufnail*. Wellington College. Ambarrow. Sandhurst. Finchampstead. Long Moor. Broadmoor. Easthampstead. Bagshot. Bracknell. Wokingham. Sunningdale. Sunninghill. Very fine by Virginia Water. By Heath Pool, near Wellington. Warren Row Common.

C. echinata is recorded for all the bordering counties.

C. remota, Linn. Amoen. Ac. iv. 293 (1759), Sp. Pl. ed. 2, 1383 (1762), and Herb.

C. axillaris, Linn. Sp. Pl. ed. 2, 1382 (1762), not of Goodenough.

Top. Bot. 451. Syme, E. B. x. 96, t. 1627. Nyman, 780. Fl. Oxf. 329.

Native. Septal and sylvestral. Wet woods, shady hedge-banks, especially by ditches which are permanently damp. Pondsides, &c. Locally abundant, especially in low situations on clayey ground. An elegant species from its gracefully curved leaves and long foliaceous bracts. P. May-June.

First record. Near Oxford, *Sir Joseph Banks, Herb. Brit. Mus.* 1760.

C. remota, Dr. Noehden, *Mavor's Agr. Berks*, 1809.

A starved form, the *C. tenella*, Sm. Engl. Fl. iv. 83 (1828) not of Schkuhr, occurred in Riever Wood, &c. A creeping form is figured in Reichb. Ic. Fl. Germ. et Helv. viii. f. 557, but I have not noticed it in Berkshire.

C. remota occurs in all the bordering counties.

C. axillaris, Good. in Linn. Soc. Trans. ii. 151 (1792) not of Linn.

C. remota \times *muricata*, Richter, Pl. Europeae, 168. *C. pseudo-axillaris*, Richter, l.c.

Top. Bot. 451. Syme, E. B. x. 97, t. 1628. Nyman, 780. Fl. Oxf. 328. Native. Paludal. Wet ditches in low situations on clayey soil.

Local and rather rare. P. May-June.

First certain record. Marcham, the author in *Journ. Bot.* (1883) 26, and *Rep. of Bot. Rec. Club*, 1883.

C. axillaris, Dr. Noehden, *Mavor's Agr. Berks*, but the list shows that the critical plants cannot be trusted in this work.

2. Ock. By a damp shady hedgerow between Marcham Mill and the Canal, *Druce in Rep. of Bot. Rec. Club*, 1883.

5. Loddon. Many places about Wokingham, Bill Hill, and Sandford Mill, *Salmon*. Near Three-Mile-Cross, *Tufnail*. Whistley Green. Swallowfield. Near Twyford. Near Spencer's Wood Common. In the latter locality it may extend into the Kennet district.

C. axillaris is recorded for all the bordering counties except E. Gloucestershire.

C. Boenninghausiana, Weihe in *Flora*, ix. (1826) 759.

C. Boenninghausiana, Kunth, *Enum.* ii. 404. *C. remota* \times *paniculata*, Garcke, *Fl. N. et M. Deutsch.* ed. 6, 421, and Richter, l. c.

Top. Bot. 451. Syme, E. B. x. 98, t. 1629. Nyman, 780.

Native. Paludal. Stream-sides in shady situations. Very rare. P. June.

First found by the author in Berkshire in 1890.

2. Ock. By a shady stream near Cothill growing with *C. paniculata* and *C. remota*.

Treated as synonymous with *C. axillaris* in *Index Kewensis*, but forms of *C. paniculata* are the nearer alliance. It is only recorded for Surrey of the bordering counties.

C. elongata, Linn. Sp. Pl. 974 (1753), and Herb.

Top. Bot. 451. Syme, E. B. x. 99, t. 1630. Nyman, 779.

Native. Paludal. Marshes, sides of wet ditches, and margins of ponds. Very local, but plentiful over a limited area of the London Clay. P. June-July.

First recorded by the author in *Rep. of Bot. Exch. Club*, 320, 1890, and 388, 1892.

5. Loddon. This interesting plant was found by the author in 1890 on a marshy tract of ground, once Coleman's Moor, now almost entirely under cultivation. It occurs in hedges also near Sandford Bridge and by a pond near Loddon Bridge. Between Jouldern's and Thatcher's Ford on the Blackwater, sparingly.

Mr. J. C. Melvill tells me that he found it in 1875 by ditches along the Reading road past Hurst Grove in considerable quantity.

C. elongata is only recorded for Surrey of the bordering counties, but I have seen it in Hants by the Blackwater.

C. canescens, Linn. Sp. Pl. 974 (1753). Fl. Suec. ed. 2, 842 (teste Wahlenberg). Herb. No. 34.

C. curta, Good. in Linn. Soc. Trans. ii. 145 (1792). *C. brizoides*, Huds. Fl. Angl. 349 and Linn. Herb. No. 10, not of Sp. Pl. *C. cinerea*, Pollich, Hist. Pl. Pal. ii. 571.

Top. Bot. 450. Syme, E. B. x. 102, t. 1631. Nyman, 780. Fl. Oxf. 331. Native. Uliginal. Marshes, bogs, wet places on heaths. Local, but abundant over limited areas in the Loddon district. P. June-July.

First record. *C. curta*, Dr. Goodenough in Linn. Soc. Trans. 1892. Dr. Lightfoot also notes it in his MSS. under *Carex brizoides*, and he may have been the prior discoverer. Mentioned as a Berkshire plant in Smith's *Fl. Brit.* 968 (1804), and in Mavor's *Agr. Berks*, 1809.

5. Loddon. Virginia Water, Goodenough. Still plentiful there, especially at the western end in Berkshire. It is given for Bagshot in the *Winch* MSS. but the locality may be in Surrey. I have found it plentifully by the Lake at Sandhurst, in great luxuriance by Spout Pond, and by Heath Pool near Wellington College, also at Long Moor, and by the road between Wellington College and Wokingham. Also plentifully in Sunninghill bog.

The light yellowish-green foliage renders it distinguishable at a glance from its allies.

C. canescens is recorded only for Surrey, Hants, and Wilts.

C. leporina, Linn. Sp. Pl. 973 (1753).

C. ovalis, Good. in Linn. Soc. Trans. ii. 148 (1792).

Top. Bot. 450. Syme, E. B. x. 103, t. 1634. Nyman, 779. Fl. Oxf. 328. Native. Ericetal, &c. Moist heaths, marshes, &c. Local. Scarce in the north of the county. P. May-June.

First record. *C. ovalis*, Dr. Goodenough, l.c. 1792.

1. Isis. Wytham.

2. Ock. Bagley Wood, Baxter in Walk. Fl. 267 (1833). Boar's Hill. Frilford. Tubney. Wootton.

3. Pang. Oarebury Hill Wood. Cold Ash Common. Bucklebury. Oare Common. Fence Wood.

4. Kennet. Mortimer, *Tufnail*. Shaw. Bucklebury. Newbury Wash Common. Burghfield. Aldermaston. Little Common, Hungerford. Inkpen. Hampstead Marshall. Snelsmore. Crookham Heath. Tilcombe Green.

5. Loddon. On the high ground above Virginia Water I found *C. ovalis* with one male oblong spike, Goodenough, 1792. By the

side of ponds on Cookham Dean, *Mill. Hurst, Melvill. Sandhurst. Wellington College. Wokingham. Finchampstead. Long Moor. Farley Hill. Spencer's Wood Common. Early Heath. Coleman's Moor. Sunningwell. Bracknell. Stubbing's Heath. Windsor Park. Warren Row Common.*

Var. BRACTEATA. *C. ovalis*, var. *bracteata*, Syme, l.c., has been seen on Stubbing's Heath and in Fence Wood.

C. leporina is recorded for all the bordering counties.

C. elata, All. Fl. Pedem. ii. 272 (1785), not of Lowe.

C. stricta, Good, l.c. 196 (1792), not of Lamarck. *C. caespitosa*, Huds. Fl. Angl. ed. 2, 412, not of Linn. *C. melanochloros*, Thuill. Fl. Par. i. 448 (1790). *C. gracilis*, Wimm. in Jahr. Schles. Ges. (1849) 79, not of R. Brown. *C. Hudsonii*, Arth. Benn. Lond. Cat. ed. 9, 1895.

Top. Bot. 457. Syme, E. B. x. 108, t. 1638. Nyman, 776.

Native. Paludal. Marshy places, by rivers, in peaty places and ponds in peaty soil. Very local and rather rare. P. May-June.

First certain record. *C. stricta*, the author in *Rep. of Bot. Exch. Club*, 348. 1891. *C. stricta*, Dr. Noehden, *Mavor's Agr. Berks*, 1809, is a very doubtful record both as to identification and locality.

5. Loddon. I first found this as an immense tussock by the river Loddon in 1891, and subsequently found a few plants nearer to Sandford Mill. Specimens from the Loddon side were sent by the author to the *Bot. Exch. Club* in 1891, see *Report*, 348.

C. elata is recorded for Wiltshire and Gloucestershire.

C. acuta, var. *b. rufa*, Linn. Sp. Pl. 978 (1753). *Brown Carex.*

C. acuta, Huds. Fl. Angl. 353 (1762). *C. gracilis*, Curt. Fl. Lond. fasc. iv. t. 62 (c. 1783). *C. rufa*, Richter, Pl. Europeae, 155.

Top. Bot. 458. Syme, E. B. x. 109, t. 1639. Nyman, 777. Fl. Oxf. 327. Native. Paludal. Sides of rivers, canals, brooks, and ponds. Marshy meadows, &c. Abundant in the north of the county. Less frequent in the south and in the Kennet Valley than *C. acutiformis*, but in the north the reverse is the case.

First record. *C. acuta*. Slender spiked Sedge, Dr. Noehden, *Mavor's Agr. Berks*, 1809.

C. acuta is represented in the Linnean Herbarium on sheet No. 28. but another sheet so labelled contains specimens of some other species. According to strict priority Hudson should be cited for this species, since in ed. 1 of the *Species Plantarum*, it was the var. *rufa* of *C. acuta*.

In Berkshire, *C. acuta* is a variable species, differing in the relative length of the glumes and the perigynia as well as in other respects. Our forms include var. **PERSONATA** (Boott, Car. 166, t. 552), Fries, Nov. 281. *C. Touranginiana*, Boreau, Fl. Cent. Fr. ed. 2, 532, which occurs

by the Thames near Iffley, at Blewbury, &c.; it has the habit of *prolixa*, but the spikes are of a pale ferrugineous colour, and the lower glumes are aristate; a form which is rather frequent by the Abingdon Canal comes between this and the type.

Var. *PROLIXA*, Hartm. Scand. iv. 302. *C. prolixa*, Fries, Nov. Mant. iii. 228 (1842). A plant from ditches and sides of the Thames near Moulsoford is best placed under this form. Near Newbury a robust form occurs, which has much of the aspect of *C. elata*; it is four feet high, with long stout spikes. This was distributed through the Bot. Exch. Club for 1890, and considered by the Rev. E. F. Linton to be *C. acuta* in the direction of *prolixa*. A plant much nearer *prolixa* occurred near Binsey.

Var. *GRACILESCENS*, Almquist, occurs in marshes and by canals, &c., but it appears to be united to the type by intermediate forms; in its more extreme form I have seen it near Marcham, near Abingdon, and near Radley. Specimens from Abingdon were distributed through the Bot. Exch. Club, 1892, by the author.

Var. *VIRIDIS*, Hartm. A form with shorter and paler glumes and prominent yellowish green perigynia. I have seen it at Wytham, Appleton, by the Abingdon Canal, by the Loddon, and at Moulsoford. Is it distinct from the var. *chlorostachya*, Reichb. Ic. Fl. Germ. et Helv. viii. f. 585? A closely allied form to this is a plant with shorter spikelets which occurs by the river ditches near Kennington; it agrees excellently with specimens labelled var. *fluviatilis* in Fl. Ingricæ Exsicc., but I do not know whether it is identical with *C. acuta*, var. *fluviatilis*, Hn. Sw. Bot. 498, cited by N. J. Anderson in *Cyperac. Scand.* 44 (1849).

Var. *ZYGOSTACHYA*, Reichb. Ic. Fl. Germ. et Helv. viii. f. 585 d, is a monstrous condition in which both male and female spikelets are branched; it occurred by the Abingdon Canal. A condition of the plant in which the upper female spike has some male flowers at the apex is not uncommon; it is the var. *Moenchiana*, Wend.

Var. *NIGRESCENS*, Druce in Rep. of Bot. Exch. Club, 388, 1892, in which both perigynia and glumes are of a uniformly purplish-brown colour, is possibly only a melanic condition. Dr. Lange considered it to be only a form.

In by far the larger number of plants placed under *C. acuta*, which occur in Berkshire, the glume will be found to have a large number of narrow transparent lacunæ.

Var. *IMPUNCTA*, mihi, in which the lacunæ are absent, I have noted from Abingdon and Wytham.

I find that Boott in his *Illustrations of the Genus Carex* alludes to the presence of the lacunæ in *C. acuta*.

C. acuta is found in all the bordering counties.

C. Goodenowii, Gay in Ann. Sc. Nat. Sér. 11, xi. (1839) 191.

C. vulgaris, Fries, Mant. iii. 153 (1842). *C. acuta*, var. *nigra*, Linn. Sp. Pl. 978 (1753). *C. caespitosa*, Good. l. c. and Smith, not of Linn. *C. rigida*, Good., var. *Goodenovii*, Bailey.

Top. Bot. 457. Syme, E. B. x. 114, t. 1643. Nyman, 777. Fl. Oxf. 327. Native. Paludal, &c. Marshes, wet meadows, heaths, &c. Not very common. P. May.

First record. *C. caespitosa*, Dr. Noehden, *Mavor's Agr. Berks*, 1809.

C. Goodenovii is a very variable plant; in our marshes and bogs in the south of the county it appears often as a densely caespitose plant, with culms 15-18 inches high, which in the extreme form is the var. *ULIGINOSA* = *C. vulgaris*, var. *uliginosa*, Syme, l. c., which may be synonymous with *C. juncella*, T. M. Fries, in Bot. Notiser (1837) 207. This has been seen at Windsor Park, Burghfield, Inkpen, Sunninghill, Sandhurst, Early, Bagshot, and Long Moor, but the more frequent plant has broader leaves, and is rather similar to the var. *tricostata*, which is a Scandinavian plant.

An analogous form to the var. *viridis* of *C. acuta* occurs in this species, viz. the var. *CHLOBROSTACHYA*, Reichb. l. c. Fl. Germ. et Helv. viii. 6, f. 579, nom. solum, which has paler and shorter glumes and more prominent and greener perigynia; this and the form *polygama*, Reichb. l. c. 580 b, have been seen at Cothill, near Radley, Bucklebury, &c.

A small form from Wytham, with leafy bracts and stout spikelets with large perigynia, is allied to the var. *teres*, Reichb. figd. in Boott, Carices, 142.

Although not a common species in the same way that *C. flacca* is, yet *C. Goodenowii* is found in many localities in all the districts, and is especially frequent in the boggy district of the south-west.

C. Goodenowii occurs in all the bordering counties.

See Andersson, Cyperac. Scand. 48, 1849.

C. flacca, Schreber, Spic. Fl. Lips. app. n. 669 (1771). *Carnation Grass*.

C. glauca, Scop. Fl. Carn. ed. 2, ii. 223 (1772). *C. recurva*, Huds. Fl. Angl. ed. 2, 413 (1778).

Top. Bot. 467. Syme, E. B. x. 116, t. 1644. Nyman, 774. Fl. Oxf. 326. Native. Pascual, &c. Pastures, roadsides, chalk downs, heaths, &c.

Rather partial to clay or stiff soils, but occurring not only in very wet, but also apparently dry soils. Common and generally distributed. Found at 900 feet on Gibbet Hill. P. April-May.

First record. Near Hinksey. A spec. on the sheet of *C. panicea* collected by Prof. Bobart in *Herb. Oxf.* about 1690. *C. recurva*, Dr. Noehden, *Mavor's Agr. Berks*, 1809. Given in *Russell's Cat.* 1839, and as *C. glauca* is stated to grow in all the woods about Marlow by Mr. G. G. Mill in *Phyt.* i. 994, 1843.

This is rather a pretty species from its glaucous foliage, hence the origin of the name Carnation Grass.

C. flacca is a most variable sedge; we have as extreme forms the pale glumed plant with long cylindric spikelets, which is found plentifully on our limestone and chalk soils, and the plant with rich chocolate-coloured glumes, with shorter and more oval spikelets, which occurs near Sandhurst.

In some plants the perigynia are nearly smooth, in others, especially in marshy meadows, they are very rough. Occasionally, as at Abingdon, &c., the spikelets are compound at the base, an analogous condition, but in a less marked degree, to the var. *zygostachya* of *C. acuta*. It is the var. *Parlatoreana*, Cesati, and the var. *aggregata*, under *C. glauca* of Reichb. Ic. Fl. Germ. et Helv. viii. t. 648. A form with the female spikelets having male flowers also occurs. A curious monstrosity, under the name of *C. recurva*, collected near Windsor by Mr. Gotobed, is contained in *Herb. Smith* in the Linnean Society.

C. flacca is found in all the bordering counties.

[*C. LIMOSA*, Linn. Sp. Pl. 977 (1753), and Herb. 21 (this number includes a scrap of *C. paniculata*). Syme, E. B. x. 119, t. 1647. Is found in the New Forest.]

[*C. DIGITATA*, Linn. Sp. Pl. 975 (1753), and Herb. 14.

Syme, E. B. x. 122, t. 1650. Is recorded for Wiltshire and Gloucestershire.]

[*C. HUMILIS*, Leyser, Fl. Hal. 175 (1761).

C. claudestina, Good. l. c. 167 (1792). Syme, E. B. x. 124, t. 1651. Is recorded for Hampshire (Breamore Down) and Wiltshire, and is a not unlikely plant to be found on our chalk downs on the Wiltshire or Hampshire border.]

[*C. MONTANA*, Linn. Fl. Suec. ed. 2, 328, and Herb. 15, not of Sp. Pl. 975. There is another sheet marked *C. montana*, which does not contain that species.

Syme, E. B. x. 125, t. 1652. Is recorded for Chalfont St. Peter's in Bucks and Hants; it may possibly be found in the Loddon or Kennet districts.]

C. pilulifera, Linn. Sp. Pl. 976 (1753), not of Herb. *Pill-headed Sedge*.

C. montana, Huds. Fl. Angl. 407 (1762), not of Linn. Fl. Suec. but of Sp. Pl. 975.

Top. Bot. 468. Syme, E. B. x. 127, t. 1653. Nyman, 774. Fl. Oxf. 325. Native. Ericetal. Heaths, dry woods, peaty ground. Local. Not very common, except in the south-west of the county, where its decumbent fruiting stems are not an unfrequent feature in the grassy heaths. P. April-May.

First record. *C. pilulifera*, Dr. Noehden in *Mavor's Agr. Berks*, 1809.

1. *Isis*. Wytham.

2. *Ock*. Bagley. Wootton, *Boswell*. Marcham, *Walker*. Denchworth, *Wait*. Tubney.

3. *Pang*. Cold Ash Common, *W. M. Rogers*. Bucklebury. Oare. Hermitage. Curridge Common. Streatley.

4. **Kennet.** *Russell's Cat.* 1839. Mortimer, *Tufnail*. West Ilsley. Lower Bucklebury. Greenham Common. Silchester. Aldermaston. Hampstead Marshall. Crookham Heath. Wickham. Burghfield. Newbury Wash Common. Snelsmore, abundant. Tilcombe.
5. **Loddon.** Virginia Water, *Herb. Oxf.* 1868. Bracknell. Wellington College Grounds. Sandhurst. Ambarrow. Long Moor. Finchampstead. Farley Hill. Bagshot. Ascot. Windsor Park. Warren Row Common. Stubbing's Heath.

At Mortimer it occurred with a long acute glume, near to var. *longebracteata*, Lange (1864), but not identical with the var. *Leesii*, Ridley. Mr. Tufnail tells me this form is not uncommon at Bearwood.

C. pilulifera is recorded for all the bordering counties except East Gloucestershire.

C. verna, Chaix in Vill. Hist. Pl. Dauph. i. 312 (1787).

C. praecox, Jacq. Fl. Austr. v. 23, t. 446 (1778), not of Schreber Spic. Fl. Lips. 63 (1771). *C. montana*, Lightf. Fl. Scot. ii. 551, not of Linn. *C. saxatilis*, Huds. Fl. Angl. 408, not of Linn.

Top. Bot. 468. Syme, E. B. x. 129, t. 1655. Nyman, 773. Fl. Oxf. 325. Native. Pascual. Meadows, heaths, chalk downs, &c. Rather common and widely distributed. P. April-May.

First record. *C. Praecox*, Dr. Noehden, *Mavor's Agr. Berks*, 1809.

C. verna is found in all the bordering counties.

[**C. TOMENTOSA**, Linn. Mant. i. 123 (1767), not of Lightfoot.

Syme, E. B. x. 130, t. 1656. Is found in meadows, &c., in Gloucestershire and Wiltshire, very near to the Berkshire border, and may yet be found in the western part of the Isis district.]

C. pallescens, Linn. Sp. Pl. 977 (1753) and Herb. 23. *Pale Sedge*.

Top. Bot. 461. Syme, E. B. x. 132, t. 1657. Nyman, 774. Fl. Oxf. 326. Native. Sylvestral. Moist woods and shady places, chiefly in clayey soil. Local and rather rare. P. May.

First record. '*C. pallescens*, Dr. Noehden,' *Mavor's Agr. Berks*, 1809.

1. **Isis.** Wytham Wood, *Newton Young in Walk. Fl.*
2. **Ock.** Bagley and Boar's Hill, *Boswell*.
3. **Pang.** Oarebury Hill Wood. Oare Wood.
4. **Kennet.** Near Shaw, *Jackson*. Wood near Enborne. Mortimer. Common over a considerable wooded area between Kintbury and Inkpen.
5. **Loddon.** [Wellington Coll. list 'everywhere' is, of course, an error. The plant observed was probably *C. flacca*.] Hurst, *Melville*.

Our plants are the var. *UNDULATA* (Kunze, in Schkuhr, Riedgr. Suppl. 23, n. 8, as a species), which has the lowest bract transversely

crimped at the base ; it is the commoner form in Britain. I have only seen it without crimped leaves in Glen Spean and Braemar.

C. pallescens is recorded for all the bordering counties except East Gloucestershire.

C. panicea, Linn. Sp. Pl. 977 (1753), and Herb. 24. *Pink Sedge*.

Top. Bot. 464. Syme, E. B. x. 133, t. 1658. Nyman, 775. Fl. Oxf. 366-7.

Native. Paludal and uliginal. Wet meadows, bogs, and marshes.

Local, but rather frequent when it does occur. P. May-June.

First record. *Gramen cyperoides caryophylleum elatius granis tumidioribus, spica pediculis tenuissimis appensis*. Ad sylvarum margines, locisque gramineis prope Hinksey in agro Bercheriae alibique nascitur, (Bobart) Morison, *Hist. Ox.* iii. 243, 1699. The sheet illustrating this in Herb. Morison [Bobart] at Oxford contains one specimen of *C. panicea* and one tall specimen of *C. flacca* ; the above description is sufficiently clear to show that *C. panicea* is intended. *C. Panicea*, Dr. Noehden, *Mavor's Agr. Berks*, 1809.

1. **Isis.** Wytham Wood.

2. **Ock.** Hinksey, Bobart. Marcham, Walker. Foxcombe Hill, Boswell. Bagley Wood. Wootton. Near Ferry Hinksey. In the Rifle Butts Range. Cothill. Frilford. Abundant in the marshy border of the railway between Radley and Abingdon. On Abingdon Racecourse. Shippon. Tubney. Near Kennington.

3. **Pang.** Bucklebury. Cold Ash Common. Oare. Moulsoford. Bradfield. Fence Woods.

4. **Kennet.** Burghfield. Aldermaston. Hampstead Marshall. Crookham Heath. Newbury Meadows. Greenham. Bucklebury. Benham. Inkpen. Snelsmore Common. Tilcombe. Bagnor. Newbury Wash, &c.

5. **Loddon.** Hurst, Melvill. Sunninghill. Early. Coleman's Moor. Sandhurst. Long Moor. Spout Pond. Finchampstead. Easthampstead. Ruscombe. Warren Row. Windsor Park. Risely. Wokingham. Bracknell, &c.

C. panicea occurs in all the bordering counties.

C. pendula, Huds. Fl. Angl. 352 (1762). *Pendulous Sedge*.

Top. Bot. 466. Syme, E. B. x. 139, t. 1660. Nyman, 769. Fl. Oxf. 323.

Native. Septal and sylvestral. Shady woods, hedges, on clayey soil.

Local, but abundant in a few localities. P. June-July.

First record. *C. pendula*, Dr. Noehden, *Mavor's Agr. Berks*, 1809.

1. **Isis.** Ditches on both sides of the Faringdon Road, going up the hill, just beyond Botley, Baxter in Walk. Fl. 1833. Cumnor, Boswell. Very abundant in the lower part of Wytham Wood. In the meadows and copses between the Eynsham and the

Abingdon Road. In a ditch on the south side of the Eynsham Road.

2. *Ock*. Cumnor Hurst, *Dyer*. Powder Hill Copse, *Boswell*. Hen Wood.

[5. *Loddon*. If Dr. Noehden's plant is correctly named, it must have been from the neighbourhood of Windsor, but it may have been from Buckinghamshire.]

The record of Hinksey, Morison in the Flora of Oxfordshire, must be deleted; the specimen in the Herb. is *C. panicea*.

C. pendula is one of our most graceful plants; when growing, as it does in Wytham Wood, in the greatest luxuriance and abundance, it affords a most beautiful appearance. Its occurrence usually marks the junction of a porous stratum with clay.

C. pendula is recorded for all the bordering counties.

C. strigosa, Huds. Fl. Angl. ed. 2, 411 (1778), not of Allioni. Top. Bot. 466. Syme, E. B. x. 141, t. 1661. Nyman, 769. Fl. Oxf. 324. Native. Sylvestral. Shady places and woods. Very rare. P. June. First record. Prope Oxford D. Sheffield, in *Huds. Fl. Angl.* l. c. 411, 1778. Woods near Oxford, Mr. Newberry ex Stokes in *With. Bot. Arr.* ed. 2, ii. 104, 1787, in Sm. Fl. Brit. 982, 1800, and Engl. Fl. iv. 96, 1828.

1. *Isis*. Wytham Wood, *Sheffield*.

It is rather curious, if the above record be correct, that no other botanist should have been able to rediscover it. The only specimen which I have seen labelled *C. strigosa* from Wytham was a large specimen of *C. sylvatica* collected about 1830. *C. sylvatica* is abundant there, and occurs in a more luxuriant growth than is usually the case. Sibthorp in *Flora Oxon.* recorded *C. strigosa* from Noke Wood in that county, and Dr. Goodenough, in *Trans. Linn. Soc. l. c.*, 1792, states that 'My friend Dr. Jno. Sibthorp has lately discovered this plant in another situation in the neighbourhood of Oxford.' See also the third edition of Withering's *Bot. Arr.*, the *New Botanist's Guide*, &c. I have been equally unfortunate in trying to find it in the Oxford station. Is there not some probability of some other plant having been mistaken for the true *C. strigosa*? In the Sherardian Herbarium at Oxford a specimen of *C. brachystachys* (*C. strigosa*, All. not of Huds.) is labelled by Sibthorp *C. strigosa*, but, of course, this may have been done prior to his becoming acquainted with Hudson's plant. The determination of a specific name from an Herbarium specimen, named by its author, must not be too implicitly relied on, unless dates, &c., are compared.

4. *Kennet*. After many years' unsuccessful hunting for this species in the Upper Thames province, the author was rewarded by finding it at the base of the chalk escarpment near Riever Wood, which is close to the Wiltshire boundary. Specimens

from this locality were distributed through the *Bot. Exch. Club* for 1890, which is the first certain record of the species in the county. The beakless perigynia and the much broader leaves distinguish it from *C. sylvatica*.

C. strigosa is recorded, on somewhat doubtful authority, for Oxfordshire, and is not recorded for Bucks, but is found in the other counties bordering Berkshire.

C. sylvatica, Huds. Fl. Angl. 353 (1762). *Wood Sedge*.

Top. Bot. 466. Syme, E. B. x. 144, t. 1665. Nyman, 769. Fl. Oxf. 323. Native. Damp woods, hedges, &c. Common in all the districts. P. May-June.

First record. *C. sylvatica*, Dr. Noehden, *Mavor's Agr. Berks*, 1809. Bisham Wood, Mr. G. G. Mill in *Phyt.* i. 994, 1843.

Too widely distributed to need citation of localities. It occurs in a very luxuriant condition in Wytham Wood.

C. sylvatica occurs in all the bordering counties.

[**C. DEPAUPERATA**, Curt. Cat. 92, No. 228 ex With. ed. 2, 1049 (1787). Syme, E. B. x. 142, t. 1674.

C. ventricosa, Curtis, Fl. Lond. f. vi. t. 68 (c. 1790).

A very rare British species; is found in Surrey.]

C. laevigata, Sm. in Linn. Soc. Trans. v. (1800) 272, read 1799 (not of Wahlenberg).

C. helodes, Link in Schrad. Journ. (1799) 305.

Top. Bot. 464. Syme, E. B. x. 146, t. 1666. Nyman, 769. Fl. Oxf. 324. Native. Sylvestral. Shady and marshy places. Very local. P. April-June.

First recorded by Mr. Gotobed in *Bot. Guide*, 1805, and in *Mavor's Agr. Berks*, 1809.

1. **Isis**. Wytham Wood. (Some doubt exists as to the correctness of the name.)

3. **Pang**. In some plenty, growing in the watery margin of a pond near Tilehurst, usually with two male spikes.

4. **Kennet**. Bucklebury Lower Common, L. G. Sutton. In a marshy place between Greenham Common and the Kennet, Jackson.

5. **Loddon**. Near Crowthorn, Salmon. Windsor Great Park, in a bog, Gotobed. In a damp thicket near Bracknell.

The bracts of the female spikes exceeded in length the top of the upper male spike in most of the Tilehurst plants.

C. laevigata is recorded for the counties of Surrey, Hants, Wilts, and Gloucestershire.

C. binervis, Sm. in Linn. Soc. Trans. v. (1800) 268, read 1799.

C. distans, Lightf. Fl. Scot. ii. 561, not of Linn.

Top. Bot. 464. Syme, E. B. x. 147, t. 1667. Nyman, 770. Fl. Oxf. 324.

Native. Ericetal. Heaths, wet roadsides, &c. Locally common, but absent from extensive tracts in the north of the county, common in the heathy tracts of the south-west. P. April-June.

First record. Windsor Great Park, Mr. Gotobed in the *Bot. Guide*, 1805.

1. **Isis.** Pusey, *Boswell*.
2. **Ook.** Jenny Bunting's Parlour, *Boswell*. Cothill. Blewbury. Formerly in the Happy Valley on Boar's Hill, now destroyed by drainage.
3. **Pang.** Cold Ash Common. Bucklebury. Oare Common. Curridge. Luxuriant at Cold Ash and Fence Wood.
4. **Kennet.** Pine Wood, opposite the 'Three Firs,' Mortimer, *form elatior*, *F. Tufnail*. Greenham Common. Bagnor. Crookham Heath. Snelsmore Common. Burghfield. Inkpen. Aldermaston. Upton.
5. **Loddon.** Black Park and Windsor Great Park, *Gotobed*. Risely. Jouldern's Ford. Very fine in Swinley. Sandhurst. Finchampstead. Bagshot Heath. Crowthorn. Easthampstead. Ascot. Sunningdale. Bearwood. Abundant on the heaths in this district.

C. binervis is a variable sedge, but its range of variation in Berkshire is limited compared with that which is found in the highlands. About Sandhurst and Bagshot it occurs as the large heath plant *f. elatior*, mihi, and at Broadmoor I found a very broad-leaved form. At Sandhurst a form with compound spikes has been met with.

C. binervis is recorded for all the bordering counties.

C. distans, Linn. Sp. Pl. 1387, ed. 2 (1762), and Syst. ed. 10, 1263 (1760). Top. Bot. 463. Syme, E. B. x. 149, t. 1668. Nyman, 770. Fl. Oxf. 324. Native. Paludal. Marshy fields. Local, with a rather limited distribution. P. June-July.

First certain record. Marcham, the author in *Rep. of Bot. Record Club*, 1885. (The name is included on Dr. Noehden's authority without locality, and almost certainly in error in *Mavor's Agr. Berks*, 1809.)

1. **Isis.** Near Buscot, and probably elsewhere in the Thames meadows.
2. **Ook.** Marcham, *G. C. Druce*. The specimens were reported on as follows: 'This is that robust form, rivalling *binervis* in size (but very different from that in fruit and glumes), which is in England solely an inland or fresh-water plant. Its stout, cylindric, erect spikelets well filled with large green perigynia, lacking the spikelet low down of the salt-water type, its fulvous glumes and longer leaves, all suggest an overgrown *Hornschuchiana*,' *F. A. Lees* in *Rep. of Bot. Rec. Club*, 1885. In some fields near Abingdon.

C. distans does not appear to be recorded for Surrey or Bucks of the bordering counties.

× *C. fulva*, Good. in Linn. Soc. Trans. ii. 177 (1792).

C. xanthocarpa, Degl. in Lois. Fl. Gall. ed. 2, ii. 299, not of Bicknell.

C. Hornschuchiana × *flava*, Garcke, Fl. v. Deutsch. 13, Aufl. 430 (1878).

Syme, E. B. x. 152, t. 1659. Nyman, 770.

Native. Uliginal. Bogs. Very rare. P. June.

First found by the author in 1889. Specimens were sent to the Bot. Exch. Club in 1892.

2. *Ock*. Cothill Marsh, with *C. Hornschuchiana* and *C. flava*. The plant, usually called *C. fulva* by continental botanists (that is the hybrid *C. Hornschuchiana* × *flava* which is nearer to *C. Hornschuchiana*), is more frequent than the hybrid which is nearer to *C. flava*, which I refer to *C. xanthocarpa*. Of this I have only seen one or two specimens.

I suspect that under British *C. fulva* hybrids of *C. flava*, and its forms with *C. Hornschuchiana*, *C. binervis* and *C. distans*, may be included.

C. Hornschuchiana, Hoppe in Flora, vii. (1824) 599.

C. fulva, var. *speirostachya*, Syme, l.c. 153. *C. speirostachya*, Swartz ex Sm. Engl. Fl. iv. 98.

Top. Bot. 462. Syme, E. B. x. 153, t. 1670. Nyman, 770. Fl. Oxf. 324.

Native. Uliginal. Marshes and bogs. Local and rather rare. P. May-June.

First record. *C. fulva*. Near Eton, Mr. Gotobed in E. B. t. 1295, 1804.

1. *Isis*. Wytham.

2. *Ock*. Boar's Hill. Cothill. In the Rifle Butt Range. Frilford. Tubney. Marcham. Near Abingdon. Near Kennington.

5. *Loddon*. Near Eton, *Gotobed*. Sunninghill.

I am afraid I have omitted to mark localities for this; it assuredly has a wider range than the above records indicate.

C. Hornschuchiana (including *C. fulva*) is recorded for all the bordering counties.

[**C. PUNCTATA**, Gaud. Agrost. Helv. ii. 152 (1811).

? *C. diluta*, M. Bieb. Fl. Taur. Cauc. ii. 388, teste Arth. Bennett. (A distinct species according to Dr. Christ, Richter, Index Kewensis, &c.) *C. pallidior*, Degl. in Lois. Fl. Gall. ii. 299.

Syme, E. B. x. 150, t. 1671. Is recorded for South Hampshire.]

C. flava, Linn. Sp. Pl. 975 (1753). *Yellow Sedge*.

Gramen palustre Echinatum, Ger. Em. 17.

Top. Bot. 459. Syme, E. B. x. 156, t. 1672. Nyman, 771. Fl. Oxf. 324-5.

Native. Uliginal. Marshes, bogs, wet heathy places. Local and rather uncommon, except in the boggy ground of the south-west. P. May-June.

First record. *C. flava*, Dr. Noehden, *Mavor's Agr. Berks*, 1809. See also the author in *Rep. of Bot. Record Club*, 1881.

1. *Isis*. In Wytham Wood, var. *minor*, Towns. *Journ. Bot.* x. (1881) 163. *C. Oederi*, Retz in Ehrh. *Beitr.* vi. (1791) 83. Ehrh. *Cal. Exsicc.* n. 79.
2. *Ock*. Shadwell Copse, *Boswell*. Bagley Wood, *the author*, l. c., true *flava*. Hen Wood. Frilford Marsh. Cothill Marsh. Rifle Butt Range. Near Ferry Hinksey, all true *flava*. Bog between Abingdon and Cothill.
3. *Pang*. Cold Ash Common, var. *minor*, *W. M. Rogers*. Fence Wood. Oare. Bucklebury.
4. *Kennet*. Snelsmore, '*Oederi*,' *Russell's Cat.* Burghfield. Mortimer. Aldermaston. Inkpen. Bagnor. Newbury Wash. Tilcombe Green, all var. *minor*.
5. *Loddon*. Bulmarsh, *Tufnail*. Wellington College, 'everywhere,' *Well. Coll. List*. Jouldern's Ford. Finchampstead. Sandhurst. Ascot. Sunningwell. Long Moor, also as the type. East-hampstead. Bagshot Heath. Crowthorn. Broadmoor. Early Heath. Coleman's Moor. Windsor Park. Wokingham. Bearwood. Warren Row Common, &c. These are chiefly var. *minor*, *Townsend, Journ. Bot.* (1881) 163.

On Early Heath a form of *C. flava* occurred, which was about 16 inches high, but the spikes were larger than those of var. *elatior*, Schlecht. *Fl. Berol.* i. 477 (1823), and the upper part of the culm not scabrid. The culm was bent at right angles near the insertion of the upper fertile spike. Probably they are var. *elatior*, Anderss. *Cyperac. Scand.* 25. Near Hermitage a form occurred which appears to be the var. *argillacea*, Towns. in *Journ. Bot.* (1881) 163. In Fence Wood plants occur which answer to the description of var. *longifolia*, Brébisson, *Fl. de la Normandie*, 352.

C. flava is recorded for all the bordering counties.

[*C. FLAVA*, L. var. *CYPEROIDES*, Marsson, *Fl. Neu-Vorpommern*, 537 (1869).

C. Oederi, auct. var. not of Retz. *C. chrysites*, Link, in *Herb. Berol.*

Syme, x. 157, t. 1674.

Is recorded for Surrey and Hampshire. (The *C. Oederi* of *Russell's Catalogue* is *C. flava*, var. *minor*.)]

[*C. FILIFORMIS*, Linn. *Sp. Pl.* 976 (1753), and *Herb.*

C. tomentosa, Lightf. *Fl. Scot.* 553, not of Linn. Syme, E. B. x. 160, t. 1676.

Is recorded for Hampshire, and may possibly be found in the neighbourhood of Blackwater.

It was included in one of the *Wellington Coll. Lists*, on the authority of A. Gray, but doubts as to its being correctly identified and to the locality prevent me from including it in the *Flora*.]

C. hirta, Linn. *Sp. Pl.* 975 (1753), not of Oeder. *Hairy Sedge*.

Top. Bot. 469. Syme, E. B. x. 161, t. 1677. Nyman, 768. *Fl. Oxf.* 323.

Native. Paludal, &c. Meadows, bogs, ditches, roadsides, heaths, &c., by no means restricted to damp situations. P. April-June.

First record. *C. hirta*, Dr. Noehden, *Mavor's Agr. Berks*, 1809. Bagley Wood, Mr. Baxter, MSS. 1829.

C. hirta is too widely spread to need specific localities being enumerated. It occurs on very dry sandy soil at Frilford, and has been found of unusual size at South Hinksey and Benham. I have not seen the form with glabrous leaf-sheaths, the var. *hirtaeformis*, Pers. Syn. ii. 547, in Berkshire.

C. hirta is recorded for all the bordering counties.

C. Pseudo-cyperus, Linn. Sp. Pl. 978 (1753), and Herb. 26.

Pseudo-cyperus, Gerard, Em., 29.

Top. Bot. 467. Syme, E. B. x. 163, t. 1675. Nyman, 767. Fl. Oxf. 321.

Native. Paludal. Low marshes and margins of stagnant water, sides of ditches and ponds. Local. P. May-June.

First record. *Gramen cyperoides spica pendula brevior*, C. B. P. In comitatu . . . Bercheriae . . . reperitur, (Bobart) Morison, *Hist. Ox.* 111, 242, 1699, and *Herb. Oxf.*

2. Ock. Kennington Lane, plentiful. Radley.

4. Kennet. Speen Moor, Jackson. Theale, in a marshy place near the railway. Southcote, moat side. Plentiful and very fine in Aldermaston Soak, where it formed a noticeable feature in the vegetation. Mortimer West.

5. Loddon. Ditches near Eton, not uncommon, *Gotobed in Bot. Guide*, 1805. Abundantly in a ditch at the foot of Cookham Down by the nearest pond, Mill. Near Wellington College, Penny. Near Sandford Mill, Salmon. Between Wellington College and Wokingham. Near Wokingham. Hurst. Whistley Green. In several places about Sandford Mill. At Embrooke Mill near Wokingham.

C. Pseudo-cyperus, which is one of our most beautiful sedges, is recorded for all the bordering counties except E. Gloucestershire.

C. acutiformis, Ehrh. Cal. No. 30, 1791, and Beitr. iv. (1788) 43.

C. paludosa, Good. l. c. 202, 1792. *C. acuta*, Curt. Fl. Lond. iv. t. 281, not of Linn.

Top. Bot. 470. Syme, E. B. x. 165, t. 1678. Nyman, 768. Fl. Oxf. 322.

Native. Paludal. Sides of rivers, ponds, and ditches, marshes, and wet places in woods. Generally distributed in the valleys of the county, and the most common species by the Kennet. P. May-June.

First record. *C. paludosa*. Banks of the river (at Marlow), Mr. G. G. Mill in *Phyt.* i. 994, 1843. Various forms, which were gathered by the Kennet, were sent by the author to the *Bot. Exch. Club*, 1890.

C. acutiformis is one of our most variable sedges; one of the modifications is that in which the glumes of the female flower are terminated by a long rough awn which exceeds the perigynium. This, the var. *spadicea* (Roth, Tent. Fl. Germ. 2, ii. 461, as a species), *C. Kochiana*, DC. Cat. Hort. Monsp. 8, has been noticed in all the districts, as at Wytham, Eynsham, plentifully by the Marcham Canal, near Pangbourn, plentifully along the Kennet Canal, and by the Loddon and Thames. It is not unlikely that hybrids of *C. acutiformis*, with *C. riparia* and perhaps *C. acuta*, are grouped under it, since, when the fruit is imperfect, the glume often becomes of disproportionate size. The length of the glume in this and other sedges is very variable, and I do not myself consider it sufficient in itself to be a mark of varietal distinction.

Near Marcham I gathered a plant which is almost certainly *C. acutiformis* × *riparia*.

In Frilford Marsh I found a sterile form which rather suggested a trace of *C. rostrata*. By the Loddon some very luxuriant plants were seen with paler perigynia than usual.

A plant which I saw by the Thames near Iffley in 1883 suggests a hybrid with *C. acuta*; it is too ripe to see the number of stigmas, but the fruit, although much more flattened than *C. acutiformis* in its typical state, has a longer beak than that of *C. acuta*.

By the Kennet I have also gathered the *f. digyna*, and another form with very distant and shorter spikes. The *forma composita*, with one or more small spikes at the base of the lower spikes, has been noted at Marcham and near Newbury. Specimens with the lower male spikes bearing a few female flowers are not uncommon; such have been seen at Virginia Water, and by the Thames and its tributaries. A plant which occurred by the Wantage Canal, with very short and partly sterile spikes, Mr. Arthur Bennett tells me, is near to the plant called *C. paludosa*, var. *depauperata*, Lange.

C. acutiformis occurs in all the bordering counties.

C. riparia, Curt. Fl. Lond. iv. t. 60 (c. 1783).

C. crassa, Ehrh. Beitr. iv. 43 (1789). *C. vesicaria*, Leers, Fl. Herbon. t. 16, not of Linn.

Top. Bot. 471. Syme, E. B. x. 167, t. 1689. Nyman, 767. Fl. Oxf. 322. Native. Paludal. On the margins of rivers, canals, ditches, ponds, &c., in marshes, &c. Abundant in all the valleys of the county, but reaching its maximum of frequency on the Thames, where it is a very conspicuous feature in the vegetation, and is frequently represented in pictures of that river. The contrast of its glaucous-coloured leaves and the glossy brown glumes and yellow anthers is pleasing. P. May-June.

First record. *C. riparia*, Dr. Noehden, *Mavor's Agr. Berks*, 1809. Banks of the river (at Marlow), Mr. G. G. Mill in *Phyt.* i. 994, 1843.

A form, which is not unfrequent, in which the upper male spikes have a few female flowers at the base, was sent by the author to the *Bot. Exch. Club*, 1883, from Sonning (not Ponning, as printed there).

Sterile forms occur, probably of a hybrid origin.

C. riparia occurs commonly in all the bordering counties.

C. rostrata, Stokes in With. Bot. Arr. ed. 2, ii. 1059 (1787). *Bottle Sedge*.

C. vesicaria, var. *b*, Linn. Sp. Pl. 979 (1753). *C. ampullacea*, Good. l. c. 207 (1792). *C. obtusangula*, Ehrh. Beitr. vi. 82 (1792).

Top. Bot. 469. Syme, E. B. x. 168, t. 1680. Nyman, 768. Fl. Oxf. 323. Native. Paludal. Marshes and bogs. Locally common. P. June-July. Absent from considerable tracts of the country, and one of the plants which is destroyed by drainage.

First record. *C. ampullacea*. Plentiful at Virginia Water, Dr. Goodenough, l. c. 207, 1792. See also *Sm. Fl. Brit.* 1007, 1800, and *Bot. Guide*, 1805, &c.

2. Ock. Shadwell Copse, *Boswell*. Frilford Heath. Cothill Bog. Marsh between Cothill and Abingdon. Near Abingdon.

3. Pang. Cold Ash, rare.

4. Kennet. Aldermaston Decoy. Snelsmore.

5. Loddon. Virginia Water, *Goodenough*. Sunninghill Bog. Long Moor. Finchampstead. Sandhurst. Bagshot Heath. Coleman's Moor.

C. rostrata is recorded for all the bordering counties.

C. vesicaria, Linn. Sp. Pl. 979 (1753). *Bladder Sedge*.

C. inflata, Huds. Fl. Angl. 354 (1762).

Top. Bot. 469. Syme, E. B. x. 170, t. 1682. Nyman, 768. Fl. Oxf. 322. Native. Paludal. Sides of brooks and ditches, wet alluvial meadows, marshes, &c. Rather rare and in scattered localities, attaining its maximum of frequency in the flat tract of the Loddon district on the London Clay. P. May-June.

First record. *Gramen cyperoides majus praecox, spicis turgidis teretibus flavescentibus*, (*Bobart*) *Morison, Hist. Ox.* iii. 242. Ad rivulos circa Oxonium sed rarius observavit *Bobartus*, *Ray, Syn.* ed. 3, 420, 1726.

2. Ock. Sandford. Iffley, by the Thames.

3. Pang. In a small pond near Marlstone House.

4. Kennet. Southcote. Aldermaston Soak.

5. Loddon. By a pond, in a field immediately below Bisham Wood, *Mill*. Hurst, *Melville*. Banks of Loddon near Loddon Bridge, very beautiful specimens. Ruscombe, in several localities. Whistley Green. Sandford Mill. Finchampstead. Arborfield.

The form *pendula* occurred at Whistley Green and by the Loddon.
C. vesicaria is recorded for all the bordering counties except Bucks.

GRAMINACEAE, Lindl. Veg. King. 106 (1847).

POACEAE, R. Br. Flind. Voy. App. 2, 583 (1814).

PANICUM, Linn. Gen. n. 70.

****P. SANGUINALE**, Linn. Sp. Pl. 57 (1753), and Herb.

Digitaria sanguinalis, Scop. Fl. Carn. ed. 2, i. 52 (1772).

Cyb. Br. iii. 148. Comp. Cyb. Br. 592. Syme, E. B. xi. 198. Nyman, 788.

Casual. Waste places. Rare, and not established. A. July.

1. Isis. By the railway, Didcot.

5. Loddon. Near Bagshot, *W. Pamplin in Herb. Oxf.*

****P. GLABRUM**, Gaud. Agrost. Helv. i. 22 (1811).

Digitaria humifusa, Pers. Syn. i. 85 (1805). *D. filiformis*, Moel. Descr. Gram. 26 (1802).

Syme, E. B. xi. 198. Nyman, 788. Parnell, Gr. Brit. t. 71.

Casual. Waste places, not permanent. A. July.

2. Ock. On waste ground and rubbish, Grandpont, 1890.

****P. MILIACEUM**, Linn. Sp. Pl. 58 (1753), and Herb.

Millet Grass.

Syme, E. B. xi. 199. Nyman, 788.

Casual. Waste places, owing its origin to the sweepings of seed-shops and the cleaning of bird-cages. A. July.

1. Isis. Wytham Mill. 2. Ock. Grandpont. Abingdon Racecourse.

4. Kennet. Near Reading. Newbury.

5. Loddon. On rubbish near Windsor.

****P. CRUS-GALLI**, Linn. Sp. Pl. 56 (1753), and Herb. *Loose Panick Grass.*

Echinochloa Crus-galli, Beauv. Agrost. 53. *Panicum vulgare*, Ger. Em. 85.

Cyb. Br. iii. 148. Syme, E. B. xi. 12, t. 1692. Nyman, 787. Fl. Oxf. 332.

Casual. Waste places. Rare. A. July–August.

First recorded by the author from Didcot in 1890, with other foreign casuals.

1. Isis. Near Wytham Mill. Clover field near Longworth.

2. Ock. Grandpont. Didcot. River-side between Oxford and Iffley, 1891.

Var. *BREVISSETUM* (Doell, Fl. Bad. 232 (1857), sub *Panicum*). Near Wytham. Near Folly Bridge, Oxford.

Var. *LONGISETUM* (Doell, l. c.), *Panicum stagninum*, Host, is the more usual form.

SETARIA, Beauv. Fl. Owar. ii. 80 (1807).

***S. VIRIDIS**, Beauv. Agrost. 51 (1812).

Green Panick Grass.

Panicum viride, Linn. Syst. ed. 10, 870 (1759), and Herb.

Cyb. Br. iii. 149. Syme, E. B. xi. 13, t. 1693. Nyman, 786. Fl. Oxf. 332.

Casual. Waste places. Rare. A. July–August.

First record. *Panicum viride*, Dr. Noehden. Sandy fields. The panicks not much valued among grasses and by no means plentiful, *Mavor's Agr. Berks*, 1809.

2. Ock. River-side near Folly Bridge, but in Berkshire, *F. T. Richards*.

By the railway near Didcot, to be seen most years. South Hinksey, 1884.

4. **Kennet.** By the railway at Newbury, 1893. Hermitage, by the railway.
 5. **Loddon.** By the railway near Wellington College Station.
 Specimens from Didcot were sent to *Bot. Exch. Club* by the author in 1892.

****S. GLAUCA**, Beauv. *Agrost.* 51 (1812).

Panicum glaucum, Linn. *Sp. Pl.* 56 (1753), and *Herb.*

Cyb. Br. iii. 150. Syme, *E. B.* xi. 199. Nyman, 787. *Fl. Oxf.* 332.
 Casual. Waste places. Rare. A. July.

2. **Ock.** By the river near Folly Bridge, *F. T. Richards*, 1886. In 1887 it was still there. Near the Gas Works, by the railway. Didcot, by the railway, pretty well established.

4. **Kennet.** By the railway at Newbury.
 5. **Loddon.** Windsor, *Everett*.

****S. VERTICILLATA**, Beauv. l. c. 51 (1812).

Rough Panick Grass.

Panicum verticillatum, Linn. *Sp. Pl.* ed. 2, 82 (1762), and *Herb.*

Cyb. Br. iii. 150. Syme, *E. B.* xi. 14, t. 1694. Nyman, 787. *Fl. Oxf.* 332.
 Casual. Waste ground. Rare. July.

First record. *Panicum verticillatum*, Dr. Noehden, *Mavor's Agr. Berks.*, 1809.

2. **Ock.** Didcot. 4. **Kennet.** Newbury, by the railway. 5. **Loddon.**
 By the railway near Maidenhead.

If the genus *Setaria* of Palisot de Beauvais, which dates from 1807, is untenable, owing to the genus of Lichens named *Setaria* by Acharius in 1798, the name to be chosen for this genus of grasses is apparently *Ixophorus*, Schlecht. in *Linnaea*, xxxi. (1861-2) 42; the species stand as *Ixophorus viridis*, *I. glaucus*, and *I. verticillatus* of Nash, in *Bull. Torrey Club*, xxii. (1895) 422.

[S. PARTINA STRICTA, Roth, *Cat.* iii. 9 (1806), and *Neue Beytr.* i. 101. Syme, *E. B.* xi. 4, t. 1687 (*Dactylis cynosuroides*, Linn. *Sp. Pl.* 71 (1753) p.p.), with

S. ALTERNIFLORA, Lois. *Fl. Gall.* 719 (1806), and **S. TOWNSENDI**, Groves, H. & J., *Bot. Exch. Club Rep.* (1880) 37, are found on the mud flats of South Hants, but are not likely to occur in Berkshire.]

[HOMALOCENCHRUS ORYZOIDES, Mieg, ex Pollich, *Hist. Pl. Palat.* i. 52 (1776).

Phalaris oryzoides, Linn. *Sp. Pl.* 55 (1753), et *Herb. p.p.* *Leersia-oryzoides*, Swartz, *Prod. Veg. Ind. Occ.* 21 (1788).

Syme, *E. B.* xi. 2, t. 1686. Is found in Surrey and Hants, and may reward the searcher for it by the Blackwater. Its foliage is rather like *Phalaris arundinacea*.]

PHALARIS, Linn. *Gen.* n. 69.

***P. CANARIENSIS**, Linn. *Sp. Pl.* 54 (1753), and *Herb.* *Canary Grass.*

Cyb. Br. iii. 151. Syme, *E. B.* xi. 20, t. 1698. Nyman, 791. *Fl. Oxf.* 333.

Casual. Waste ground near houses. Not uncommon, but not permanently established. A. June-August.

First recorded by the author in the *Flora of Oxfordshire*, 1886.

1. **Isis.** Near Wytham Mill. 2. **Ock.** Wootton. Near Bagley, *Fl. Oxf.* Grandpont. Didcot. Abingdon. 3. **Pang.** Streatley.
 4. **Kennet.** Newbury Railway, *Weaver*. Near Southcote. 5. **Loddon.** Near Reading. Maidenhead. Windsor. Wargrave.

P. canariensis occurs as an escape in all the bordering counties.

P. arundinacea, Linn. *Sp. Pl.* 55 (1753), and *Herb.*

Ribbon

Grass, Common Reed Grass.

Digraphis arundinacea, Trin. Fund. Agrost. 127 (1820). *Baldingera colorata*, Gaertn. Fl. Wett. i. 96 (1799).

Top. Bot. 473. Syme, E. B. xi. 19, t. 1697. Nyman, 791. Fl. Oxf. 323. Native. Paludal. Sides of rivers, ditches, ponds, canals, and brooks. Common and generally distributed in all the valleys of the county. P. June-July.

First record. *Gramen arundinaceum acerosa gluma*, Park. Ubique ad Thamesis ripas, Reede Grass with whitish tops, *Johnson's Mercurius*, part 2, 22, 1641. *Phalaris arundinacea*, Dr. Noehden. Banks of rivers and pools. As a thatch it is more durable than straw, *Mavor's Agr. Berks*, 1809. Sonning [*f. colorata*], *S. Rudge in Herb. Brit. Mus.* 1800.

The form *variegata* (Parnell, l. c. 188, t. 82, as a variety), which is the Ribbon Grass so often cultivated in village gardens, has been found at Cothill, Bablock Hythe, near Wittenham, and Sonning. *Phalaris arundinacea* is found commonly in all the bordering counties.

ANTHOXANTHUM, Linn. Gen. n. 40.

A. odoratum, Linn. Sp. Pl. 28 (1753), and Herb. *Sweet Scented Vernal Grass*.

Gramen Anthoxanthum spicatum, J. Bauhin, Hist. ii. 466.

Top. Bot. 473. Syme, E. B. xi. 17, t. 1696. Nyman, 790. Fl. Oxf. 332. Native. Pratal, &c. Meadows, pastures, heaths, open woods, &c. Abundant and widely distributed. P. April-June.

First record. Common in meadows and pastures, and one of our earliest grasses. It communicates to new mown hay that delightful smell for which it is distinguished, *Mavor's Agr. Berks*, 1809.

Forms with yellow and with purple anthers are found.

Var. PUBESCENS, S. F. Gray, Nat. Arr. ii. 135 = *A. villosum*, Dumort. Agrost. Belg. 129; Reichb. Ic. Fl. Germ. et Helv. i. t. 182, f. 498, is a slight variety with pubescent glumes and somewhat scabrid stem which occurs occasionally with the type, as at Padworth and Little Common, Hungerford.

In woods it occurs as a lax spiked and taller plant, with longer and more acuminate glumes.

The fragrance is due to the presence of a principle called Coumarin, which is contained in several of our British plants, as *Asperula odorata*, *Milium effusum*, *Melilotus*, *Orchis Simia*, *O. militaris*, *O. ustulata*, &c.

A. odoratum is found commonly in all the bordering counties.

****A. PUELI**, Lec. et Lamotte, Cat. Pl. Auv. 385 (1847). Kept as a species in Index Kewensis.

A. aristatum, Boiss Voy. Esp. ii. 638 (1839-45), var. *Puelii*, Lange in Pl. Hisp. Exsicc. n. 19.

Journ. Bot. (1875) 1-5, t. 157 (not very good). Nyman, 790. Fl. Oxf. 332-3. Casual. Cultivated fields. Rare, and not permanent. A. June-August. First recorded by Mr. F. Tufnail, 1883, in *Rep. of Bot. Rec. Club*.

5. Loddon. Sonning, in sandy field with clover, &c., *Tufnail*. See Dr. F. A. Lees in *Rep. of Bot. Rec. Club* (1883), 52. I found it in a wild-looking spot, on a grassy bank in the heathy country near Wellington College, perhaps introduced with pheasant food, but I saw no Buckwheat near. It also was seen in a clover field near Clewer.

ALOPECURUS, Linn. Gen. n. 72.

A. myosuroides, Huds. Fl. Angl. 23 (1762). *Field Foxtail Grass*, 'Black Grass.'

A. agrestis, Linn. Sp. Pl. ed. 2, 89 (1762) and Herb. *Gramen myosuroides majus*, &c. Ray, Syn. 397.

Top. Bot. 475. Syme, E. B. xi. 22, t. 1699. Nyman, 794. Fl. Oxf. 334. Native. Agrestal. Cultivated fields, roadsides, &c. Common in all the districts under cultivation, and more frequent in poor thin soils. P. April-October.

First record. Sonning, *Mr. S. Rudge in Herb. Brit. Mus.* 1800. *A. agrestis*, Dr. Noehden, *Mavor's Agr. Berks*, 1809.

This is the troublesome weed, Mr. Tufnail tells me, known as the Black Switch or Black Grass, which is common in all the bordering counties.

[**A. UTRICULATUS**, Pers. Syn. i. 80, a native of Southern and Central Europe, has been found in some plenty in the Yarnton meadows, Oxfordshire, by the Rev. L. V. Lester.]

A. fulvus, Sm. E. B. t. 1467 (1805).

A. paludosus, Beauv. ex Mert. et Koch in Roehl. Deutsch. Fl. i. 481.

Top. Bot. 474. Syme, E. B. xi. 23, t. 1700. Nyman, 794. Fl. Oxf. 334. Paludal. Native. Margins of ponds. Very local and confined to a few localities on the London Clay. It prefers wetter situations than the next species, with which it is sometimes confounded. P. June-August.

First record. *A. fulvus*, Mr. H. C. Watson in *Britten's Contr.* 1871.

5. Loddon. Brickfield by Embrook Mill near Wokingham, *Watson*. Seen there, but very sparingly, in 1889 by the Rev. V. C. Crawley; it was more plentiful in 1892 when I sent specimens to the *Bot. Exch. Club*; see *Rep.* p. 390. I was very glad to find this local species in great abundance and luxuriance in two ponds, nearly opposite Shottesbrooke Church (not the pond which is close to the church, but the one nearer to Waltham), on the road to Twyford. Here it was a conspicuous object from its bright orange-scarlet anthers and glaucous foliage. It also occurs in a marshy field near Twyford and in a marsh near Ruscombe.

Although *A. fulvus* is closely allied to *A. geniculatus* (it is made synonymous in *Index Kew.*), I think it is a distinct species. The shortness of the awn is a character which readily distinguishes *fulvus* from *geniculatus*, and this character is perpetuated by seed. The spikes are more attenuated at the apex than in *geniculatus*.

A. fulvus is recorded for Surrey, Wilts, and Oxfordshire of the bordering counties.

A. geniculatus, Linn. Sp. Pl. 60 (1753), and Herb. *Jointed Foxtail Grass*.
Gramen aquaticum geniculatum spicatum, C. B. Pin. 3.

Top. Bot. 474. Syme, E. B. xi. 25, t. 1701. Nyman, 794. Fl. Oxf. 334. Native. Paludal. Wet places, margins of pools and ditches. Common and generally distributed in the valleys, and a frequent grass by wet roadsides in low-lying districts. P. May–September.

First record. *A. geniculatus*, Dr. Noehden, *Mavor's Agr. Berks*, 1809.

A floating glaucous-leaved form, with broader leaves than usual, was sent from Wootton by the author to the *Bot. Exch. Club*, 1888, but Professor Hackel says it has no distinguishing name.

A. geniculatus is found in all the bordering counties.

A. pratensis, Linn. Sp. Pl. 60 (1753) and Herb. *Meadow Foxtail Grass*.
Gramen Alopecuriodes majus, Ger. Em. 10.

Top. Bot. 474. Syme, E. B. xi. 27, t. 1703. Nyman, 793. Fl. Oxf. 334. Native. Pratal. Meadows, pastures, roadsides, &c. Preferring rich alluvial soil. P. April–June.

First record. 'Scarce in Berkshire,' *Stillingfleet, Misc. Tracts*, ed. 3, 382, 1775. Common in the best meadows of which it forms part of the herbage. It deserves to be cultivated. Dr. Pulteney says it is the most grateful of all grasses to cattle, *Mavor's Agr. Berks*, 1809.

A viviparous form was noticed near Wytham.

A. pratensis is found in all the bordering counties.

MILIUM, Linn. Gen. n. 73 (Tournefort, Inst. t. 298).

M. effusum, Linn. Sp. Pl. 61 (1753), and Herb. *Wood Millet Grass*,
Soft Millet.

Gramen miliaceum, Lobel. Icon. 3.

Top. Bot. 477. Syme, E. B. xi. 60, t. 1778. Nyman, 806. Fl. Oxf. 337. Native. Sylvestral. Woods and shady places. Locally common, preferring a chalky or calcareous soil. P. May–July.

First record. *M. effusum*, Dr. Noehden. Not much valued as a grass, *Mavor's Agr. Berks*, 1809.

1. Isis. Wytham Wood.

2. Ock. Bagley Wood, *Baxter in Walk. Fl.* 1833. Near Childswell Farm, *Baxt.* Tubney, *Walker.* Birch Copse, *Boswell.*

3. Pang. Unwell Wood, *Lawson in Herb. Oxf.* Unusually abundant in Streatley Wood, *Tufnail*. In the woods about Hampstead Norris, *Lousley*. Ashridge Wood. Ashampstead. Tidmarsh. Sulham. Basildon Wood. Withy Coppice. Heath Wood. Yattendon. Wood near Langley.
4. Kennet. Peasemore, *W. M. Rogers*. Shaw Dean, *Weaver*. Catmore. Hodcott. West Ilsley. Brimpton. Riever Wood. Kintbury. Tilcombe Wood.
5. Loddon. Common in the woods about Marlow, *Mill*. Wood near Wargrave. Ashley Hill Wood. Bowsey Hill Wood. Quarry Wood, &c. Bisham Wood. Knowl Hill Wood.

Milium effusum, which is one of our most graceful species, is recorded for all the bordering counties.

PHLEUM, Linn. Gen. n. 71.

P. pratense, Linn. Sp. Pl. 59 (1753), and Herb. *Timothy Grass*,
Common Catstail Grass.

Top. Bot. 473. Syme, E. B. xi. 32, t. 1706. Nyman, 792. Fl. Oxf. 323. Native. Pascual. Meadows, pastures, roadsides, chalk downs, &c.

Common in all the districts. P. June–October.

First record. Near Oxford, *Sir Joseph Banks in Herb. Brit. Mus.* 1760 [one of the specimens is ergotized]. *P. pratense* and *P. nodosum* [the latter] perhaps a variety. Dr. Noehden. Not very grateful to animals, *Mavor's Agr. Berks*, 1809. With *Hysterium gramineum*, Pers. on it about Oxford, *Baxter, Phaen. Bot.* 68, 1834.

Var. *nodosum* (Linn. Syst. ed. 10, 871 and Herb. as a species), Syme, E. B. xi. 32, t. 1707. Not uncommon in dry situations, as near Cothill, at Hermitage; near Aldermaston, Sonning, Bray, Kingston Bagpuze, East Ilsley, Wantage, Lambourn, Twyford, Cold Ash, Hungerford, Newbury, &c. The spikes are shorter and more tapering at both ends than those of typical *Phleum pratense*.

Among grain crops a very luxuriant form is found, as at Tilehurst, &c., probably the var. *macrochaeton*, Doell, Rhein. Fl. 118. A viviparous form was brought to me by Mr. Rose in the wet autumn of 1896.

Phleum pratense is found in all the bordering counties.

AGROSTIS, Linn. Gen. n. 74.

A. setacea, Curt. Fl. Lond. vi. t. 12 (1798), not of Villars.

A. aurea, Hall. 1498, in Linn. Herb.

Top. Bot. 478. Syme, E. B. xi. 45, t. 1717. Nyman, 801. Fl. Oxf. 337. Native. Ericetal. Heathy ground. Very local, but common over

limited areas which appear to be restricted to the Bagshot Sands.

P. July–August.

First record. *A. setacea*, Mr. H. C. Watson in the *New Bot. Guide*, 1835.

4. Kennet. Mortimer Common, *Tufnail*, 1891. In some quantity over a limited area.
5. Loddon. Bagshot Heath, *Watson*. Sunninghill. Near Sandhurst. Between Sandhurst and Swinley Park very fine specimens. Easthampstead Plain.

In dry sunny weather the panicle opens in a beautiful manner.

A. setacea is recorded for Surrey, Hants, and Wiltshire. It is certainly absent from Oxfordshire.

A. canina, Linn. Sp. Pl. 62 (1753), and Herb.

A. vinealis, With. Bot. Arr. ed. 3, ii. 127 (1796). *Gramen caninum supinum paniculatum dulce*, C. B. Pin. 1.

Top. Bot. 478. Syme, E. B. xi. 46, t. 1718. Nyman, 801. Fl. Oxf. 337. Native. Ericetal. Heaths, dry sandy fields, rough pastures, and heathy woods. Local, but common where it occurs. P. July-Aug.

First record. *Mr. Baxter's MSS.* 1832.

2. Ock. Wootton Heath, *Baxter*, see *Fl. Oxf.* 1886. Frilford.
3. Pang. Fence Wood, *W. M. Rogers*. Cold Ash Common. Oare. Hermitage. Bucklebury.
4. Kennet. Snelsmore Common, *W. M. Rogers*. Mortimer, *Tufnail*. Aldermaston. Burghfield. Padworth. Newbury Wash Common. Greenham Common. Inkpen. Wickham.
5. Loddon. Bulmarsh, *Tufnail*. Early. Farley Hill. Ambarrow. Risely. Finchampstead. Wokingham. Bracknell. Binfield. Bearwood. Broadmoor. Bagshot. Long Moor. Sandhurst. Easthampstead. Sunninghill. Ascot. Windsor Park.

Very common over the heathy tract, presenting several modifications. The typical plant is awned, but awnless forms are not rare; these are var. *MUTICA*, of which robust forms occur near Wild Moor Bottom.

The panicles vary in colour in these different forms. The type has panicles which are reddish brown (the *A. rubra*, DC. Fl. Fr. iii. 19, not of Linn.), or when growing in shady situations the panicle is sometimes of a greenish white (*A. pallida*, Schk. Handb. 3, not of DC. Reichb. Ic. Fl. Germ. et Helv. i. f. 129), which I have seen in Fence Wood, Mortimer, &c.; the plant with yellowish panicles is *A. varians*, Thuill. Fl. Par. ii. 35, according to Grenier and Godron.

In damp heathy spots about Finchampstead, Owls Moor, &c., a form is found which in habit in some way reminds one of *Deschampsia discolor*, the long capillary leaves being somewhat glaucous. In some cases the culms of *A. canina* are decumbent and root on the lower joints; this state is to be seen by the railway near Wellington College Station, on Wild Moor, &c. A tall woodland, awnless form is var. *elata*, Brébisson, Fl. Normandie, 366.

A. canina is recorded for all the bordering counties.

A. alba, Linn. Sp. Pl. 63 (1753) and Herb. p. p. (one spec. is *A. canina*).
Marsh Bent.

A. palustris, Huds. Fl. Angl. 27 (1762). *A. stolonifera*, Auct. not of Linn. Herb. which consists of one specimen of a *vulgaris* form and one of *A. verticillata*, Vill.

Top. Bot. 478. Syme, E. B. xi. 48, tt. 1719, 1720. Nyman, 800. Fl. Oxf. 326.

Native. Agrestal, &c. Fields, moist meadows, heaths, woods, &c.
Very abundant and generally distributed. P. June–July.

First record. *A. alba*, *Russell's Cat.* 1839. Without locality.

A. alba is a most variable species, and a large number of varieties have been described. Some of these varieties connect it with *A. vulgaris*.

In Syme's E. B. *A. alba* is treated under the names of var. *GENUINA* and var. *STOLONIFERA*.

Var. *GENUINA*. This is our common and generally distributed plant, which is found under several modifications.

Var. *GIGANTEA*, Meyer, Chlor. Hann. 655 (*A. gigantea*, Gaud. Agrost. Helv. i. 81). On railway banks, field-borders, and in copses, near Oxford, near Twyford, Waltham, &c. This form has a wide-spreading panicle; it is allied to the var. *palustris*, Parnell, Gr. Scot. t. 14.

Var. *STOLONIFERA* (*A. stolonifera*, Linn. Sp. Pl. p. p. 62, Sm. E. B. t. 1532, Parnell, Gr. Scot. t. 13). A valuable plant of the alluvial meadows in the Thames Valley, especially those subject to inundations, which adds largely to the two or more cuttings of hay during the season. It is the coarse, stiff, stoloniferous grass, which is common in ditches, &c. on clayey soil, as at Appleton, Marcham, Yattendon, &c.; it has the panicle branches arranged in dense clusters which are furnished with spikelets down to the base, not naked for some distance as in *A. alba* proper.

I have followed Grenier and Godron and others in using the name *A. alba*; thus retaining a well-known name for this species which not only has the advantage of following the rule of priority, but is also more in accord with the Linnean Herbarium than *A. stolonifera* would be.

A. alba is found in all the bordering counties.

A. vulgaris, With. Bot. Arr. ed. 3, ii. 132 (1796). *Common Bent Grass.*

A. tenuis, Sibth. Fl. Oxon. 36 (1794). *A. stolonifera*, Linn. Herb. p. p.

Top. Bot. 478. Syme, E. B. xi. 49, t. 1721. Nyman, 801. Fl. Oxf. 336.

Native. Pascual. Dry pastures, roadsides, heaths, &c. Common and generally distributed. P. June–August.

First record. *A. capillaris*. On Bagshot Heath and the best sheep pastures in Berkshire, *Stillingfleet, Misc. Tracts*, ed. 3, 382, 1775.
A. vulgaris, Dr. Noehden. On poor dry sandy land. Disliked

by cattle as all the Bents are,' *Mavor's Agr. Berks*, 1809 (but this also included *A. alba*).

A. vulgaris is another variable species, which is an extremely abundant grass in dry sandy soil and forms an excellent turf. Its panicles are of a charming purplish-brown tint, and a field of it lighted up by the declining sun is a beautiful sight. The Boar's Hill Range, the sandy commons of Bucklebury, Cold Ash, Snelsmore, Oare, Aldermaston, Greenham, Crookham, Burghfield, Mortimer, Risely, Early, Wokingham, Sunninghill, Windsor Park, &c., offer it in profusion. In shady places the panicles are often green.

Var. *ARISTATA*, Parnell, Gr. Scot. t. 13, has been seen at Burghfield, Tilehurst, &c. It is the awned form, possibly a hybrid of *A. canina*, with which I have seen it growing. Mr. F. Tufnail found it in a viviparous condition on Mortimer Common.

A. vulgaris is found in all the bordering counties.

Var. *NIGRA* (With. Bot. Arr. ed. 3, ii. 131, 1796, as a species). *Black Quitch*. Journ. Bot. (1882) 65, t. 227. Top. Bot. 478.

Native. Agrestal. Cornfields and cultivated ground. Locally common.

P. July–August.

First recorded by the author in 1883.

1. *Isis*. Near Appleton. Wytham. Cumnor.
2. *Ock*. Wittenham. Hanney. Appleford. Uffington. Didcot. Wootton.
3. *Pang*. Frequent at Tilehurst, *Tufnail*. Near Bradfield.
4. *Kennet*. Theale. Kintbury.
5. *Loddon*. Wellington College, 1891, *Mr. Sutton, Herb. Brit. Mus.* Near Finchampstead. Ambarrow. Shottesbrooke. Twyford. Sunningdale. Barkham. Early.

Dr. Boswell Syme considered this to be only a form of *A. vulgaris* caused by its growing in arable soil, and I do not think it to be a good species.

A. pumila, Linn. Mant. 31 (1753), and Herb.

A. vulgaris, var. *pumila*, Syme, E. B. xi. 50 et auct. var.

Parnell, Gr. Scot. t. 12. Reichb. Ic. Fl. Germ. et Helv. i. f. 132.

Native. Ericetal. Dry grassy heaths, particularly in the short grass of paths. Local. P. June–August.

First recorded by the author in this Flora.

2. *Ock*. Bagley. Boar's Hill.
3. *Pang*. Bucklebury. Oare. Tilehurst. Cold Ash.
4. *Kennet*. Greenham Common. Snelsmore. Mortimer. Burghfield.
5. *Loddon*. Early Heath. Bracknell. Bagshot. Sandhurst. Finchampstead. Windsor Great Park. Easthampstead. Wellington College.

The anthers are frequently, but not always, attacked by an *Ustilago*, ? *Tilletia sphaerococca*, Fisch.

A. pumila has been kept as a separate species on the authority of General Munro, who says, 'I think it a good species, although included by Kunth and others in *A. vulgaris*.' At any rate it is as distinct from *A. vulgaris* as that plant is from *A. alba*. It occurs doubtless in all the bordering counties, but I have not seen it in E. Gloucestershire.

SANTIA, Parl. Mem. Soc. Ital. Mod. viii. ii. 479 (1798).

Polypogon, Desf. Fl. Atl. i. 66 (1798).

**S. MONSPELIENSIS, Parl. Fl. Palerm. i. 73. *Bearded Dog's-tail Grass*.

Alopecurus monspeliensis, Linn. Sp. Pl. 61 (1753). *Polypogon monspeliense*, Desf. l. c. *Cynosurus panicus*, Linn. Herb. and Sp. Pl. 73 (1753).

Top. Bot. 476. Syme, E. B. xi. 40, t. 1713. Nyman, 803. Parnell, Gr. Scot. t. 11. Casual. Waste ground. Rare.

2. Ock. By the railway near Didcot. See *Rep. of Bot. Exch. Club*, 1892, 391.

[S. LITTORALIS, mihi. *Polypogon littoralis*, Sm. Comp. Fl. Brit. ed. 2, 13 (1816).

A maritime plant, which some authors consider, with considerable probability, to be a hybrid of *S. monspeliensis* with *Agrostis alba*, occurs in Dorset.]

CALAMAGROSTIS, Adans. Fam. ii. 31 (1763).

C. epigeios, Roth, Tent. Fl. Germ. i. 34 (1788). *Wood Small Reed*.

Arundo epigeios, Linn. Sp. Pl. 81 (1753), not of Linn. Herb. *Calamagrostis lanceolata*, Stokes in With. Bot. Arr. ed. 3, ii. 122, not of Roth. *A. Calamagrostis* of Linn. Herb. in part.

Top. Bot. 479. Syme, E. B. xi. 53, t. 1723. Nyman, 799. Fl. Oxf. 335. Native. Sylvestral. Damp woods and thickets. Local. P. June-July. First record. Bagley Wood, *Bart. Phaen. Bot.* 412, 1841.

1. Isis. Appleton. Botley, *Dyer*. Wytham Wood. Cumnor.

2. Ock. On the banks of ditches on the north sides of Bagley Wood, nearly opposite to South Hinksey, 1827, *Baxter*, l. c. Cothill. On the Boar's Hill Range above the Rifle Range. Between Didcot and Wittenham Wood. Local.

3. Pang. Pangbourn, *W. W. Newbould*.

5. Loddon. Virginia Water, *Herb. Brit. Mus.* Windsor Great Park. Barkham.

The panicle is usually of a purplish-brown colour, but sometimes, as in Bagley, I have found it with a wholly green inflorescence.

Calamagrostis epigeios is recorded for all the bordering counties.

C. LANCEOLATA, Roth, Tent. Fl. Germ. i. 34 (1788). *Small Reed*.

C. epigeios, Huds. Fl. Angl. 43 (1762). *C. Calamagrostis*. *Arundo epigeios*, Linn. Herb. p. p. *Arundo Calamagrostis*, Linn. Sp. Pl. 82 (1753).

Top. Bot. 478. Syme, E. B. xi. 54, t. 1754. Nyman, 800. Fl. Oxf. 336.

Error? *Arundo epigeios*. In Windsor Great Park, on the left hand of the Road going from the Lodge to Virginia Water, by side of a Wood, in a wet boggy place out of the direct Road, *Dr. Lightfoot*, MSS. 1762. This probably means the preceding species, although the note is written opposite to * 3 p. 401 in *Ray's Synopsis*.

C. lanceolata is recorded in Top. Bot. for Hants, and with some doubt for Surrey.

It would appear to be in accordance with the rules of nomenclature, as followed by British botanists who adopt the law of priority, that the plant here called *C. epigeios*, Roth, should be called *C. lanceolata*, Stokes, while *C. lanceolata*, Roth, should be *C. epigeios*, Huds., but I have not ventured to make such a perplexing change.

[*GASTRIDIDIUM AUSTRALE*, Beauv. Agrost. 21 (1812).

G. lendigerum, Gaud. Fl. Helv. i. 176 (1828). *Milium lendigerum*, Linn. Sp.

Pl. ed. 2, 91 (1762), and Herb.

Syme, E. B. xi. 37, t. 1711. Is recorded for Surrey and Hants.]

APER, Adans. Fam. ii. 495 (1763).

A. Spica-venti, Beauv. Agr. 31 (1812).

Silky Bent Grass.

Agrostis Spica-venti, Linn. Sp. Pl. 61 (1753), and Herb. *Gramen*

agrorum venti spica, Park. 1158. *Agrostis Anemagrostis*, Syme, p.p. l. c.

Top. Bot. 477. Syme, E. B. xi. 43, t. 1715. Nyman, 803. Fl. Oxf. 336.

Native. Agrestal. Sandy cornfields. Very local, but abundant in its localities. A. July–September.

First record. *Agrostis spica venti*, Old Windsor, Mr. Gotobed in the *Botanist's Guide*, 1805.

2. Ock. As a casual by the railway at Didecot.

5. Loddon. Cornfields near Old Windsor, *Gotobed*. Sandy fields among corn common, Dr. Noehden, *Mavor's Agr. Berks*, 1809. Embrook Brickfields, *Tufnail*. Near Sunninghill, just within the county, 1891. Abundant in a cornfield near Ambarrow. Finchampstead. Sandhurst.

Apera, as a native or colonist of the county, is one of our very local species, being restricted to a few localities in the south of the Loddon district; it is recorded for the counties of Bucks, Surrey, and Hants.

AIRA, Linn. Gen. n. 75.

A. caryophyllea, Linn. Sp. Pl. 66 (1753), and Herb. p.p. *Silvery Hair Grass.*

Avena caryophyllea, [Web. ex] Wigg. Prim. Fl. Holsat. 10, not of Sibthorp and Smith.

Top. Bot. 480. Syme, E. B. xi. 69, t. 1734. Nyman, 614. Fl. Oxf. 341.

Native. Ericetal and glareal. Dry heathy places. Rather rare in the north, but not uncommon in the south-west of the county.

A. May–June.

First record. Bagley Wood, in *Mr. Baxter's MSS.*, 1852.

2. Ock. Bagley Wood, *Baxter*. Wootton, *Boswell*. Foxcombe Hill. Frilford. Tubney, *Fl. Oxf.*

3. Pang. Near Marlstone House. Near Frilsham, type. Near Hermitage.

4. Kennet. Mortimer, *Tufnail*. Aldermaston. Burghfield. Padworth, abundant. Greenham. Snelsmore.
5. Loddon. Early, *Tufnail*. Sandhurst. Jouldern's Ford. Bracknell. Bagshot. Finchampstead. Crowthorn. Ascot. Farley Hill. Ambarrow.

Our plant has the panicle branches ascending after flowering.

Var. *MULTICAULIS* (Dumort. Obs. Gram. Belg. 121, 1823, as a species). Under this variety would come the majority of our Berkshire plants; it has a contracted panicle and stipitate superior glume (and I have also seen it in Oxfordshire, and in Cork and Kerry in Ireland). I have not seen the variety *patulipes*, Syme, in Berkshire.

On the sheet of *A. caryophyllea* in the Linnean Herb. there is a specimen of *Poa annua*.

Aira caryophyllea is found in all the bordering counties.

A. praecox, Linn. Sp. Pl. 65 (1753), and Herb. *Early Hair Grass.*

Avena praecox, Beauv. Agrost. 89 (1812). *Gramen parvum praecox panicula laxa canescente*, Ray, Syn. 260 (1696).

Top. Bot. 480. Syme, E. B. xi. 71, t. 1735. Nyman, 814. Fl. Oxf. 341. Native. Ericetal and glareal. Dry heathy and sandy fields. Commons and dry banks. Locally common. A more frequent plant in the county than the preceding species. A. April-June.

First record. Ascot, *Mr. Gotobed*, 1800, in *Herb. Oxf.*, and *Aira praecox*, Dr. Noehden in *Mavor's Agr. Berks*, 1809.

1. *Isis*. On a wall in Appleford. Wytham Wood.
2. *Ook*. Bagley, *Baxter*, 1812. Wootton, *Boswell*. Denchworth, *Wait*. Boar's Hill. Tubney. Frilford, *Fl. Oxf.* Besilsleigh.
3. *Pang*. Cold Ash Common. Bucklebury Common. Oare Common. Frilsham. Hermitage. Greenham and other commons, *Kussell's Cat.* 1839. Mortimer, *Tufnail*.
4. *Kennet*. Burghfield. Too common in this district to need localities.
5. *Loddon*. Ascot, *Gotobed*. Near Early, *Tufnail*. Blackwater, *Miss C. E. Palmer*. Hurst, *Melville*. Haines Hill. Farley Hill. Windsor Great Park, and in many other localities.

On Boar's Hill and on some of the commons it is found in a prostrate state, *f. prostrata*.

A. praecox is found in all the bordering counties.

DESCHAMPSIA, Beauv. Agrost. 91 (1812).

D. caespitosa, Beauv. l. c. *Tufted Hair Grass.* '*Tussack Grass.*'

Aira caespitosa, Linn. Sp. Pl. 64 (1753), and Herb. p.p. *A. major*, Syme, p.p.

Top. Bot. 480. Syme, E. B. xi. 63, t. 1730. Nyman, 807. Fl. Oxf. 337-8.

Native. Pascual, &c. Damp pastures, ditches, commons, heaths, woods, swamps, &c. Generally distributed and common. P. June–August.

First record. *Aira caespitosa*, Turfy Hair Grass, Dr. Noehden. Its leaves are extremely coarse and little relished by cattle. It is injurious in meadows, and can only be extirpated by draining and burning, *Mavor's Agr. Berks*, 1809.

Var. *BREVIIFOLIA* (Parnell, Gr. Brit. 236 sub *Aira*). Rare on chalk débris near Hampstead Norris; probably a form rather than a true variety.

Var. *ARGENTEA*, S. F. Gray, Nat. Arr. ii. 137 = ? *Aira altissima*, Lam. Fl. Fr. iii. 581.

Wytham Wood, the author in *Rep. of Bot. Exch. Club*, 1887. Professor Hackel considers it to be not a variety but a shade-grown form; but I have seen plants with pale yellow inflorescence growing in open meadows along with typical *D. caespitosa*, so that shade alone is not the cause of the different colour. Analogous instances are to be found in *Calamagrostis Epigeios*, *Agrostis alba*, and *vulgaris*, &c. The pale-flowered plant has been noted in all the districts, as at Ipsden, Bagley, Cothill, Unwell Wood, Ashampstead, Aldermaston, Windsor, &c.

Var. *PARVIFLORA*, which appears to be the *Aira parviflora*, Thuill., Fl. Par. ed. 2, i. 38, is the shade-grown plant with much smaller spikelets, which I have seen in the woods of Wytham, Swinley, Aldermaston, Easthampstead, and Windsor.

D. caespitosa is found commonly in all the bordering counties.

[*D. DISCOLOR*, Roem. & Schultes, Syst. ii. 686 (1817).

Aira setacea, Huds. Fl. Angl. 30 (1762). *D. setacea*, Lond. Cat. ed. 8.

Syme, E. B. xi. 68, t. 1733. Nyman, 808. Is recorded for Surrey and Hants, and may yet be found in the district of the Loddon on the Bagshot Sands.

This plant is placed in the genus *Aira* in *Index Kewensis*, notwithstanding its near ally *D. flexuosa* is put under *Deschampsia*. In the same work the authors say *D. discolor* of Roem. et Schult. is not *Aira setacea* of Huds., but is *D. flexuosa* and *D. juncea*. Prof. Hackel believes that *D. discolor*, the name adopted by me, is synonymous with *Aira setacea*.]

D. flexuosa, Trin. in Bull. Sc. Acad. Pétersb. i. (1836) 66. *Heath Hair Grass*.

Aira flexuosa, Linn. Sp. Pl. 65 (1753), and Herb.

Top. Bot. 480. Syme, E. B. xi. 67, t. 1732. Nyman, 808. Fl. Oxf. 338. Native. Ericetal. Heaths and fields on sandy soil. Locally common. P. June–July.

First record. *Gramen foliolis junceis oblongis radice alba*, C. B. P. Found at the head of the Bogs at Wooten Heath, three Miles from Oxford, Ray, Syn. ed. 2, 277, 1696. *Gramen nemorosum paniculis albis, capillaceo folio*, C. B. Pin. In Ericeto solo glareoso haud longe ab

- Oxonio invenimus, (*Botart*) *Morison*, *Hist. Ox.* iii. 200, 1699. The specimen is in *Herb. Oxf.*
2. **Ock.** Wootton Heath, Ray, l. c. *Aira flexuosa*. Footpath going from Childswell Farm to Wootton Heath, *Baxter in Walk. Fl.* Boar's Hill. Bagley Wood.
 3. **Pang.** Fence Wood. Cold Ash Common. Hermitage, *W. M. Rogers*. Sulham, *Tufnail*. Oare Common. Heath Wood. Bucklebury.
 4. **Kenet.** Peasmore, *W. M. Rogers*. Mortimer, *Tufnail*. Burghfield. Aldermaston. Greenham. Hampstead Marshall. Wickham. Snelsmore. Tilcombe Green.
 5. **Loddon.** Sonning Cutting, *Tufnail*. Bagshot, *Stillingsfleet*. Ambarrow. Finchampstead. Risely. Farley Hill. Bracknell. Wokingham. Ascot. Sunninghill. Easthampstead. Swinley. Coleman's Moor. Bear Wood. Windsor Park. Warren Row Common.

In the neighbourhood of Ascot, and in some localities near Newbury, I have noticed a form with pale greenish and more silvery spikelets, *f. argentea*; this may possibly be *A. patens*, Boreau.

D. flexuosa is found in all the bordering counties.

HOLCUS, Linn. Gen. n. 1015 (*Sorgum*, Mich.).

H. mollis, Linn. Sp. Pl. ed. 2, 1485 (1762). Syst. ed. 10, 1305 (1759).
Creeping Soft Grass.

Gramen miliaceum aristatum molle, Pet. Conc. Gr. 125 in Ray, Syn. 404. Top. Bot. 483. Syme, E. B. xi. 83, t. 1743. Nyman, 809. Fl. Oxf. 338. Native. Sylvestral. Woods, heaths, &c. Locally common, but much scarcer than the following species. P. June-July.

First record. *Holcus mollis*, *Mavor's Agr. Berks*, 1809.

1. **Isis.** Cumnor. Appleton. Faringdon. Wytham.
2. **Ock.** Marcham, *Walker*. Denchworth, *Wail*. Common in dry meadows at Blewbury, *Lousley*, *Russell's Cat*. Shippon. Boar's Hill. Wittenham. Cothill. Common in Wittenham Wood.
3. **Pang.** 'In dry meadows, Hampstead Norris,' *Lousley* [probably *H. lanatus*]. Tidmarsh, *Tufnail*. Cold Ash Common. Grimsbury Castle. Bucklebury. Fence Wood, abundant. Frilsham.
4. **Kenet.** Brimpton. Ufton. Inkpen. Wickham. Burghfield. Mortimer.

5. **Loddon.** Early. Coleman's Moor, plentiful in some woods near Long Moor. Bagshot. Ambarrow. Risely. Finchampstead. Farley Hill. Abundant in Windsor Great Park. Sandhurst.

Parnell describes a variety *BIARISTATA* which has two awns, but I have not met with it. Mr. Bruce showed me a viviparous form near Wellington College.

Holcus mollis is found in all the bordering counties.

H. lanatus, Linn. Sp. Pl. 1048 (1753). *Meadow Soft Grass.*

Gramen lanatum Dalechampii, J. Bauhin, Hist. ii. 466.

Top. Bot. 483. Syme, E. B. xi. 84, t. 1744. Nyman, 809. Fl. Oxf. 338. Native. Agrestal, pratal, &c. Meadows, cultivated and fallow fields, and waste places. Abundant and generally distributed. P. May–July.

First record. *H. lanatus*, *Mavor in Agr. Berks*, 1809. With *Sphaeria typhina*, Pers. about Oxford, *Bart. Phaen. Bot.* 64, 1834.

A rather elegant species, of no great agricultural value, which is found in all the bordering counties.

TRISETUM, Pers. Syn. i. 97 (1805).

T. pratense, Pers. l. c., not of Parnell. *Yellow Oat Grass.*

T. flavescens, Beauv. Agrost. 88 (1812). *Avena flavescens*, Linn. Sp. Pl. 80 (1753), and Herb. p.p.

Top. Bot. 482. Syme, E. B. xi. 73, t. 1736. Nyman, 812. Fl. Oxf. 340. Native. Pascual. Meadows, pastures, roadsides; an elegant species which is locally common, preferring dry situations. P. June–July.

First record. *Avena flavescens*, Dr. Noehden. Meadows, pastures, and hills. Reckoned the best of the genus for the use of the farmers, *Mavor's Agr. Berks*, 1809.

1. **Isis.** Pusey and Buckland, *Boswell*. Faringdon. Near Buscot. Longworth. Wytham, in the woodland drives as well as in the Park. Appleton. Cumnor. Eaton Stibble.
2. **Ock.** Marcham, *Walker*. Besilsleigh. Tubney. Cothill. South Hinksey. Shippon. Blewbury. Frilford. Radley. Didcot. West Hanney. Kingston Bagpuze.
3. **Pang.** Sulham. Bucklebury, *Tufnail*. Mouldsford. Tilehurst. Purley. Frilsham.
4. **Kennet.** Mortimer, *Tufnail*. Hampstead Marshall. Lambourn. Burghfield. Near Newbury. Common about Marlow, *Mill*.
5. **Loddon.** Maidenhead. Sonning. Sandhurst. Near Windsor. Bray. Waltham. Home Park, common.

This pretty grass is much more frequent than the preceding records show.

Forma lutescens (*Avena flavescens*, var. *lutescens*, Reichb. Ic. Fl. Germ. et Helv., t. 102, f. 205), occurs at Wytham, &c. Near Mouldsford, the form with purple anthers has been noticed, but I have not seen var. *variegatum* (= *Avena flavescens*, var. *variegata*, Gaud. Fl. Helv. i. 337. Reichb. Ic. Fl. Germ. et Helv. i. f. 206) in Berkshire, but have gathered it in Inverness-shire.

Trisetum pratense is found in all the bordering counties.

AVENA, Linn. Gen. n. 85 (Tournefort, Inst. t. 267).

A. pubescens, Huds. Fl. Angl. 42 (1762), not of Linn. Herb. *Downy Oat Grass*.

Trisetum pubescens, Parnell, Gr. Scot. t. 53, 124.

Top. Bot. 481. Syme, E. B. xi. 74, t. 1737. Nyman, 811. Fl. Oxf. 339. Native. Pascual. Glareal. Dry calcareous, gravelly, and chalky pastures, or downs. Locally common. P. May-July. A very beautiful species.

First record. *A. pubescens*, Mr. Fardon and Mr. Gotobed in the *Botanist's Guide*, 1805.

1. **Isis.** Cumnor. On the side of the road going up Cumnor Hill. Bablock Hythe. Buscot. Wytham. Coleshill. Near Inglesham. Appleford.
2. **Ock.** Shippon. On the bank going up Cumnor Hill. Frilford. Marcham. Cothill. Pusey. Radley. Uffington.
3. **Pang.** Streatley, *Tufnail*. Basildon. Bradfield. Purley. Hawpit Farm. Ilsley.
4. **Kennet.** Newbury. Mortimer. West Ilsley. Padworth. Gibbet Hill. Walbury Camp. Bagnor. Kintbury.
5. **Loddon.** Pig's Green Lane near Reading, *Fardon*. Meadows about Windsor, common, *Gotobed*. Winter Hill, on the Chalk, common, *Mill*. Sandhurst. Waltham. Maidenhead. Sonning. Park Place.

In Sutherland and Ross I have noticed a form with nearly glabrous leaf-sheath, the var. *glabra*, S. F. Gray, Nat. Arr. ii. 131, the var. *glaberrima*, Borb. in Baenitz Herb. Europ., but I have not seen it in Berkshire.

A. pubescens is found in all the bordering counties.

A. pratensis, Linn. Sp. Pl. 80 (1753), and Herb. *Narrow-leaved Oat Grass*.

Trisetum pratense, Parnell, Gr. Scot. t. 52, not of Pers.

Top. Bot. 481. Syme, E. B. xi. 75, t. 1738. Nyman, 811. Fl. Oxf. 340. Native. Pascual, glareal. Dry chalky and calcareous pastures and downs. Local. P. The stiff herbage of this handsome species is a frequent feature on the northern escarpment of the Chalk. May-July.

First found by Mr. H. Boswell, 1866; recorded in *Britt. Contr.* 1871.

1. **Isis.** Idstone. Ashbury.
2. **Ock.** Cherbury Camp. Frilford. Cothill. Letcombe Castle. Uffington and White Horse Hill. Chilton Downs. Blewbury. Wantage Downs.
3. **Pang.** Streatley, *Boswell*. Ilsley Downs, *W. M. Rogers*. Pangbourn. Sulham. East Ilsley. Compton.
4. **Kennet.** Ilsley Downs. Catmore, *W. M. Rogers*. Hampstead

Marshall. Lambourn. West Ilsley. Hodcott. Gibbet Hill.
Walbury Camp, common.

A. pratensis is found in all the bordering counties.

**A. strigosa*, Schreber, Spic. Fl. Lips. 52 (1771). *Black Oat*.

Cyb. Br. iii. 184. Syme, E. B. xi. 77, t. 1740. Nyman, 810. Fl. Oxf. 339.

Alien. Cornfields. Scattered in small quantity through the county; occurring in crops which vary from year to year, but not of constant occurrence. A. June-July.

First found in Berkshire by the author in 1880.

1. *Isis*. Fields near Wytham, Cumnor, Faringdon. Bourton. 2. *Ock*. Kennington. Wootton. Wantage. Uffington. 3. *Pang*. Tilehurst, *Tufnail*. Bradfield. Basildon. Englefield. 4. *Kennet*. Theale. Midgham. Inkpen. Sulhampstead. 5. *Loddon*. Binfield. Clewer. Hurley. Sonning.

'Everywhere,' *Wellington Coll. List*. By this probably *Arrhenatherum* was intended.

A. strigosa is recorded for the counties of Oxford, Surrey, Wilts. I have seen it in Bucks near Fenny Stratford.

**A. fatua*, Linn. Sp. Pl. 80 (1753), and Herb. p. max. p. *Wild Oat*, *Haver*.

Top. Bot. 480. Syme, E. B. xi. 79, t. 1741. Nyman, 810. Fl. Oxf. 339.

Colonist. Agrestal. Cultivated fields. Not uncommon. A. June-August.

First record. Windsor, Mr. Gotobed in the *Botanist's Guide*, 1805.

1. *Isis*. Wytham. Cumnor. Shrivenham. Buscot. Appleton.
2. *Ock*. Hinksey, *Boswell*. On the banks of fields about Blewbury, but not very plentiful, *Lousley in Russell's Cat*. 1839. Marcham, *Walker*. Kennington. Appleford. Wittenham. Wantage. Garford. Didcot. Marcham.
3. *Pang*. Tilehurst, *Tufnail*. Moultsford. Basildon. Purley. Bradfield. Bucklebury. Frilsham. Hermitage.
4. *Kennet*. Calcot. Beenham. Hampstead Marshall. Brimpton. Elcot. Woodhay.
5. *Loddon*. In the Common fields opposite Bisham Wood, &c., *Mill*. Common in fields about Windsor, *Gotobed*. About Maidenhead, *Winch*, add. in *New Bot. Guide*, 1835. Bray. Winkfield. Barkham. Near Three-mile Cross.

Var. *INTERMEDIA* (Lindg. in Lindbl. Bot. Notiser (1841), 151, as a species) = *A. hybrida*, Peterm. ex Reichb. Fl. Saxon. 17, is the less frequent form which I have seen near Kennington, Hagborne, Catmore, Twyford, &c., but I have not specially attended to the distribution of the two; the commonest form is the var. *PILOSISSIMA*, S. F. Gray in Nat. Arr. ii. 131.

A. fatua is recorded for all the bordering counties except Bucks and East Gloucestershire; but I have seen it in the former county near Taplow, &c., and near Fairford in the latter.

ARRHENATHERUM, Beauv. Agrost. 55 (1812).**A. avenaceum**, Beauv. l. c. *Oat-Grass*.*Avena elatior*, Linn. Sp. Pl. 79 (1753), and Herb.

Top. Bot. 485. Syme, E. B. xi. 81, t. 1742. Nyman, 809. Fl. Oxf. 338.

Native. Septal, &c. Roadsides, hedges, pastures, thickets, &c.

Abundant through the county. P. May-July.

First record. *Avena elatior*, Dr.-Noehden. A troublesome weed in arable lands. Unpalatable to cattle, especially to horses, *Mavor's**Agr. Berks*, 1809. Very frequently attacked with *Uredo*.*A. avenaceum* is found abundantly in all the bordering counties.**A. precatorium**, Beauv. Agrost. l. c. 56 (1812). *Onion Couch Grass*.*A. bulbosum*, Presl, Cyp. et Gram. Sic. 29 (1820). *Avena precatoria*,Thuill. Fl. Par. 58 (1790). *Arrhenatherum avenaceum*, var. *nodosum*,

Reichb. Ic. Fl. Germ. i. t. 98, f. 193. Parnell, Gr. Scot. t. 26.

Native. Agrestal, &c. Cultivated fields, hedge-banks, &c. Locally abundant. P. May-July.

First recorded by the author in this Flora.

1. **Isis**. Cumnor.2. **Ock**. Besilsleigh. Kennington.3. **Pang**. Tilehurst, *Tufnail*. Cold Ash. Near Reading. Pangbourn. Sulham.4. **Kennet**. Midgham. Near Reading.5. **Loddon**. Near Wokingham Station, *Tufnail*. Coleman's Moor. Bray. Near Sandhurst.Linnaeus noted in his copy of Scheuchzer's *Agrostographia* that this bulbous-rooted plant was probably a distinct species, an opinion shared by Prof. Lindley, Schrader, and others.

It appears to me to be worthy of sub-specific rank, as it comes true from seed, and does not depend, as has been often stated, upon the nature of the soil for its peculiarities, since seeds of it sown in stony, sandy, and loamy soil, or chalk rubble, yield plants with the same root-characters; while the type appears to be equally uninfluenced by soil, as in Glen Spean in Scotland it was the prevailing form on dry rocky banks and waysides away from cultivation. In Berkshire also it is by no means confined to arable fields.

In addition to the curious bulb-like swellings on the lower part of the stem, arranged one above another like a string of onions (hence the popular name), the plant may be distinguished by the pubescent nodes (these are sometimes glabrous, *testibus Wilkomm et Lange*) of the stem, the glabrous lower pale, and the shorter panicle branches, which give a more strict appearance to it. Moreover, the flowers are usually hermaphrodite. The tuft of hairs at the base of the flower is usually absent in *A. precatorium*.See note by Dr. M. T. Masters in *Journ. Bot.* (1894) 248 and 373.*A. precatorium* is found in all the bordering counties.**SIEGLINGIA**, Bernh. Syst. Vers. Erf. 44 (1800).**S. decumbens**, Bernh. l. c:*Festuca decumbens*, Linn. Sp. Pl. 75 (1753). *Triodia decumbens*, Beauv.

Agrost. 76.

Top. Bot. 483. Syme, E. B. xi. 87, t. 1745. Nyman, 817. Fl. Oxf. 342. Native. Ericetal. Heaths, bogs, and heathy pastures. Local. P. April-July.

First record. Bulmarsh Heath, *Mr. S. Rudge in Herb. Brit. Mus.* 1800. *Triodia decumbens*, Bagley, *Mr. Baxter in Walk. Fl.* 1833.

1. *Isis*. Near Bablock Hythe.
2. *Ock*. Bagley Wood, *Baxter, MSS.* 1823.
3. *Pang*. Streatley. Abundant on Cold Ash and Oare Commons. Bucklebury. Fence Wood. Ashampstead.
4. *Kennet*. Mortimer, *Tufnail*. Aldermaston. Silchester. Hampstead Marshall. Inkpen Common. Snelsmore. Burghfield. Greenham Common. Wickham. Padworth. Crookham Common.
5. *Loddon*. Bulmarsh, *Rudge*. Still there in 1896, *Tufnail*. Woods near Marlow, on the Henley Road, *Mill*. Farley Hill. Near Jouldern's Ford. Finchampstead. Ambarrow. Ascot. Sandhurst. Coleman's Moor. Stubbing's Heath. Risely. Windsor Great Park.

Sieglingia is found in all the bordering counties.

PHRAGMITES, Trin. Fund. Agr. 134 (1820), p.p.

P. communis, Trinius, l. c. *Common Reed*.

P. Phragmites, Karst. *Arundo Phragmites*, Linn. Sp. Pl. 81 (1753), and *Herb. A. vallisoria*, Ger. Em. 36.

Top. Bot. 478. Syme, E. B. xi. 58, t. 1727. Nyman, 798. Fl. Oxf. 335. Native. Paludal. Sides of rivers, ponds, and streams, wet hedge-banks. Marshes, common, and in some places an abundant plant. P. June-August.

First record. *Arundo vallisoria foliis ex luteo variegatis*. Found by the river Thames not far from Oxford, and proves beautiful in our Gardens, Mr. Bobart in *Ray, Syn.* 236, 1690. Sonning, *Mr. S. Rudge in Herb. Brit. Mus.* 1800. *Arundo phragmites*, much more durable than straw for thatching, and useful for screens, *Mavor's Agr. Berks*, 1809.

Phragmites is abundant by the side of the Thames at intervals throughout its course; near Bablock Hythe it attains a height of nearly ten feet. Fine clumps are to be seen in some ponds by the railway near Wantage Road Station; in the spring the contrast of the bluish-green foliage with the dead stems of the preceding year gives a charming effect. In the Kennet Valley it is to be seen in great profusion in the reed beds, of which it is the prevailing feature; these extend throughout the Berkshire course of the river as far as to Midgham, and in some places, especially near Hampstead Marshall, are of great beauty. By the Loddon there are some fine beds where the

reeds attain a height of nine feet. Luxuriant specimens are to be seen in a hedge near the Noah's Ark in the Vale. *Phragmites* is also to be found in places rather distant from streams, as at Cumnor Hill, where the feathery seeds have been blown from the Thames across the country till their progress has been stopped by the hedge, so that a line of *Phragmites* is to be seen in a hedgerow in an elevated situation on dry soil.

At Cothill a specimen with leaves variegated with yellow (var. *picta*) was noticed. The foliage of *Phragmites* assumes a beautiful golden yellow in the autumn, when its handsome panicles are also a striking feature in our river scenery. It will be remembered how skilfully they are depicted in the picture of Chill October by Sir John Millais.

Var. *NIGRICANS*, Gren. et Godr. Fl. Fr. iii. 474, has been noted, as near Kennington, Cumnor, Shippon, &c., in dried-up marshes, or in ditches which are dry at times.

P. communis is found in all the bordering counties.

CYNOSURUS, Linn. Gen. n. 81.

C. cristatus, Linn. Sp. Pl. 72 (1753), and Herb. *Crested Dog's-tail Grass*.

Gramen cristatum, J. Bauhin, Hist. ii. 468.

Top. Bot. 494. Syme, E. B. xi. 133, t. 1776. Nyman, 797. Fl. Oxf. 325. Native. Pascual. Dry fields, roadsides, and downs. Common and generally distributed. P. May–August.

First record. In many parts of Berkshire, *Stillingsfleet's Misc. Tracts*, ed. 3, 390, 1775. Sonning, *Mr. S. Rudge in Herb. Brit. Mus.* 1800. Marlow, Mr. G. G. Mill, *Phyt.* 995, 1843.

In our drier roadsides and calcareous pastures the Dog's-tail forms one of the principal constituents. Its spikes are frequently twisted into formal bouquets by village children. A viviparous form was noticed on Newbury Wash in 1895.

Cynosurus is found plentifully in all the bordering counties.

KOELERIA, Pers. Syn. i. 97 (1805).

K. cristata, Pers. l. c. *Crested Hair Grass*.

Aira cristata, Linn. Sp. Pl. 63 (1753). *Airochloa cristata*, Link. Parnell, Grasses, Scot. t. 19. *Gramen spica cristata subhirsutum*, C. B. Pin. 3.

Top. Bot. 483. Syme, E. B. xi. 88, t. 1746. Nyman, 816. Fl. Oxf. 341. Native. Glareal. Sandy, chalky, and dry calcareous pastures and downs. Local, showing a decided preference for calcareous soil. P. June–July.

First record. *K. cristata*, Mr. G. G. Mill in *Phyt.* i. 994, 1843.

1. *Isis*. Wytham, near the summit of the hill, in small quantity.

2. **Ock.** Wootton. Frilford. Near Radley, rare. Near Shippon. By the railway near Abingdon. Tubney. Between Abingdon and Marcham, on banks by the roadside.
3. **Pang.** Unwell Wood, *Lawson in Herb. Oxf.* Sulham, *Tufnail*. Streatley. Moulsoford Downs. Not unfrequent on the downs near East Ilsley. Basildon. Cold Ash Common.
4. **Kennet.** Near the Seven Springs. Near West Ilsley. Near Inkpen.
5. **Loddon.** In the little wood on the right of the Maidenhead Road at its first ascent, but sparingly, *Mill.* Near Hurley.
Var. *GRACILIS* (Pers. Syn. i. 97, as a species), Syme, l. c., has been noted from the Pang district near Compton.
Koeleria is found in all the bordering counties.

MOLINIA, Schrank, Baier. Fl. i. 344 (1789).

M. varia, Schrank, l. c. *Purple Melic Grass.*

Aira caerulea, Linn. Sp. Pl. 63 (1753), and Herb. *Melica caerulea*, Linn. Mant. ii. 325 (1771). *Molinia caerulea*, Moench, Meth. 183 (1794).
Top. Bot. 486. Syme, E. B. xi. 90, t. 1747. Nyman, 818. Fl. Oxf. 343.
Native. Uliginal. Bogs, marshes, and wet heathy places. Rare in the north, but abundant in the south of Berkshire, occupying square miles of the heathy country, almost to the exclusion of other grasses. P. July-September.
First record. Bulmarsh Heath, *Mr. S. Rudge*, 1800, in *Herb. Brit. Mus.*
M. caerulea, Cold Ash, *Russell's Cat.* 1839.

2. **Ock.** Frilford Marsh. Common over a limited area of Cothill Bog. In the valley in which is the Rifle Range above South Hinksey. Near Marcham.
3. **Pang.** Fence Wood, var. *b.* Cold Ash Common, *Russell, l. c.* Curridge.
4. **Kennet.** Mortimer. Burghfield. Padworth. Brimpton. Silchester. Aldermaston. Snelsmore Common. Wickham. Greenham Common. Ufton. Inkpen.
5. **Loddon.** Bulmarsh Heath, *Rudge.* Early, *Tufnail*. Sunningwell. Windsor Park. One of the most frequent grasses over the heathy tract on the Bagshot Sands, south and west of Wokingham.

The dark bluish-green rigid foliage and dark purple spikes are a prominent feature in the heath vegetation, where it often occurs as the var. *BREVIRAMOSA* (Parnell, *Grasses of Brit.* p. 230, of *M. caerulea*), as at Sandhurst, &c.

By the sides of wet trenches in the heathy country, and by the borders of Virginia Water, of Aldermaston Lake, &c., it occurs as the var. *MAJOR* (Roth in Syme, l. c., sub *M. caerulea*), which is some-

times four feet high, and the spikes are often more green than purple; a form with very green glumes is to be seen in shady places by Virginia Water (*f. viridis*), but is probably only a state, educed by shade and moisture. In very dry localities the plant becomes much dwarfed, and the spikelets are reduced to a single floret = *M. depauperata*, Lind. Syn. 307, 1829.

Molinia is recorded for all the bordering counties except East Gloucestershire.

CATABROSA, Beauv. Agrost. 97, t. 19 (1812).

C. aquatica, Beauv. l. c. *Water Whorl Grass*.

Aira aquatica, Linn. Sp. Pl. 64 (1753), and Herb. *Gramen miliaceum aquaticum*, Ray, Syn. ed. 2, 255.

Top. Bot. 486. Syme, E. B. xi. 94, t. 1750. Nyman, 837. Fl. Oxf. 351. Native. Inundatal. On the muddy margins of ditches, ponds, &c.

Local, and not a very common grass. P. May-July.

First record. Bagnor Marsh, *Russell's Cat.* 1839.

1. **Isis.** Cumnor.
 2. **Ock.** Hinksey, *Boswell*. Radley. Kennington, *Garnsey*. Marcham, *Walker*. Denchworth, *Wait*. Uffington. Tubney. Near Besilsleigh. Near Abingdon. Hagborne. Aston Tirrel. Sandford.
 3. **Pang.** Bradfield. Pangbourn Marsh.
 4. **Kennet.** Bagnor Marsh, *Russell*. Mortimer, *Tufnail*. Kennet side, *A. H. Maude*. Benham. Aldermaston.
 5. **Loddon.** Near Jouldern's Ford, on the Blackwater.
- Catabrosa* is recorded for all the bordering counties.

MELICA, Linn. Gen. n. 76.

M. uniflora, Retz, Obs. 10 (1779). *Melic Grass*.

M. nutans, Huds. Fl. Angl. 31 (1762), not of Linn. *M. Lobelii*, Vill. Fl. Delph. 6.

Top. Bot. 485. Syme, E. B. xi. 93, t. 1749. Nyman, 818. Fl. Oxf. 342. Native. Septal. Hedge-banks, shady woods on light soil, preferring upland situations. Locally abundant. P. May-July.

First record. *M. uniflora*, Dr. Noehden, *Mavor's Agr. Berks*, 1809.

1. **Isis.** Wytham. Near Appleton. Rare in this district.
2. **Ock.** Tubney, *Walker*. Bagley Wood. Near Radley. Rare in this district.
3. **Pang.** Langley, locally common, *W. M. Rogers*. Unwell Wood. Pangbourn. Bucklebury. Cold Ash. Grimsbury. Basildon. Heath Wood. Withy Coppice. Sulham. Oare Wood. Bradfield. Hermitage. Abundant about Ashampstead. Roebuck Wood, &c. Common in this district.
4. **Kennet.** Catmore, &c., *W. M. Rogers*. Above Chilton Foliat.

Wickham. Donnington. Woolhampton. Aldermaston. Sulhamstead. Riever Wood. Inkpen. Hampstead Marshall.

5. Loddon. Wood between Hurst and Reading, *Melville*. Park Place. Culham. Hurley. Quarry Wood. Arborfield. Long Moor. Wokingham. Coleman's Moor. Early. Wargrave. Windsor Park. Abundant and luxuriant in Bisham Wood. Ashley Hill. Knowl Hill.

Melica is recorded for all the bordering counties.

[*MELICA NUTANS*, Linn. Sp. Pl. 66 (1753), is recorded for Gloucestershire.]

DACTYLIS, Linn. Gen. n. 80 (Roy. Lugdb. 56).

D. glomerata, Linn. Sp. Pl. 71 (1753), and Herb. *Cock's-foot Grass*.

Top. Bot. 494. Syme, E. B. xi. 136, t. 1778. Nyman, 819. Fl. Oxf. 343. Sutton, Perm. Past. t. vi.

Native. Pascual, &c. Pastures, roadsides, waste places, preferring shady situations and dampish soil. Abundant and generally distributed. P. May-July.

First record. Sonning, *Mr. S. Rudge in Herb. Brit. Mus.* 1800. Not ill adapted for sheep-walks, but unsuitable for meadows, *Dr. Mavor's Agr. Berks*, 1809. On banks and in rough places about Blewbury, *Mr. J. Lousley in Russell's Cat.* 1839.

A viviparous form has been noticed on Boar's Hill. A form with very glaucous leaves and the lower branches of the panicle very long has been observed at Barkam; it is probably the *D. glaucescens*, Willd. Enum. 111. See Koch, Fl. Germ. i. 808. *Dactylis* is found normally with purple anthers, but a yellow-anthered form is not uncommon.

Mr. F. Tufnail noticed a form with quite pendulous panicles at Crazy Hill.

The *Cock's-foot Grass*, which in the young state can be recognized by the much-flattened stem, is found plentifully in all the bordering counties.

BRIZA, Linn. Gen. n. 78.

B. media, Linn. Sp. Pl. 70 (1753), and Herb. *Totter Grass, Quakers*.

Top. Bot. 494. Syme, E. B. xi. 130, t. 1774. Nyman, 832. Fl. Oxf. 349. Native. Pascual. Pastures, roadsides, boggy and heathy places, chalk downs, &c. Common and widely distributed. P. May-July.

First record. Sonning, *Mr. S. Rudge in Herb. Brit. Mus.* 1800. An indifferently kind of pasture grass, *Dr. Mavor's Agr. Berks*, 1809.

Briza is found in our wettest bogs, and also on our dry chalk downs. Both yellow and purple anthered forms are found, the latter more frequently.

Var. *VIRENS*, S. F. Gray, Nat. Arr. ii. 109. In this form the uppermost sheath often embraces the panicle, and the glumes and pales are

greenish or yellowish green. It has been noted at Frilford, Blewbury, Uffington, Lambourn, Sandhurst, Sonning, Cumnor, &c.

Briza is found in all the bordering counties.

****B. MINOR**, Linn. Sp. Pl. 70 (1753), and Herb. Syme, E. B. xi. 132, t. 1775. Nyman, 832.

Occurred as a casual near Reading, where it was noticed some years ago by Mr. F. Tufnail, but has not recently been seen.

It occurs in Kimeridge Copse in East Gloucestershire, and is recorded for Surrey and South Hants.

POA, Linn. Gen. n. 77.

P. annua, Linn. Sp. Pl. 68 (1753), and Herb. *Annual Meadow Grass.*

Gramen pratense minus seu vulgarissimum, Ray, Syn. 187 (1690).

Top. Bot. 491. Syme, E. B. xi. 111, t. 1760. Nyman, 837. Fl. Oxf. 351. Native. Pratal. Meadows, pastures, waste places, roadsides, &c.

Abundant throughout the county. Probably our commonest species. A. or rarely B. January–December.

First recorded in *Mavor's Agr. Berks*, 1809.

A form with reddish brown glumes variegated with white and green; the var. *rubra*, S. F. Gray, Nat. Arr. ii. 105, occurred on Cookham Down, and is not uncommon. The var. *crispa* of the same author I have seen under trees in Windsor Park.

Var. *AQUATICA*, Asch. Fl. Brandb. 844, has been seen in wet meadows. *Poa annua* occurs abundantly in all the bordering counties.

****P. BULBOSA**, Linn. Sp. Pl. 70 (1753). Nyman, 836. Syme, E. B. xi. 112, t. 1761.

Casual. A specimen or two was found on the mud-topped wall in Cothill, which is nearly opposite to the Mill. It was the viviparous form figured in Reichb. Ic. f. 1620, which is rather frequent on the continent, but which I have no record for as British.

P. nemoralis, Linn. Sp. Pl. 69 (1753), and Herb. for the greater part.

Top. Bot. 493. Syme, E. B. xi. 123, t. 1768. Nyman, 834. Fl. Oxf. 350. Native. Septal, sylvestral. Woods and shady hedge-banks. Locally abundant and usually a frequent plant in the Pang, Kennet, and Loddon districts, but rarer in the heathy country. P. April–June.

First record. *Gramen pratense paniculatum majus angustiore folio*, C. B. Pin. 5, Oxonio ab Amico benevolo D. Tilleman Bobart ad me transmissum, [Petiver] in Ray, Syn. ed. 2, App. 325, 1696. The specimen in Herb. Morison [Bobart] at Oxford is *P. nemoralis*. Bagley Wood, *Baxter MSS.* 1812. *P. nemoralis*, Dr. Noehden, *Mavor's Agr. Berks*, 1809.

1. *Isis*. Buckland. Wytham. Appleton. Cumnor. Scarce in this district.
2. *Ock*. Bagley Wood, *Baxter*, 1812. Cothill. Besilsleigh. Aston Tirrel. On the Boar's Hill Range. Uffington. Tubney. Wittenham.

3. **Pang.** Westbrook, *W. M. Rogers*. Ashridge Wood. Cold Ash. See *Rep. Bot. Exch. Club*, 1892. Too common in the district to need a list of localities.
4. **Kennet.** Peasemore Copse, *W. M. Rogers*. Hampstead Marshall, &c. Too common to need a list of localities.
5. **Loddon.** Binfield. Wokingham. Early. Arborfield. Long Moor. Barkham. Risely. Farley Hill. Finchampstead. Sandhurst. Easthampstead. Bracknell. Park Place. Twyford. Wargrave. Swallowfield. Bisham Wood. Ashley Hill.

Poa nemoralis is a variable species; a common form about Cold Ash, with larger florets and more spreading panicle, is between the var. *coarctata*, Gaud. Fl. Helv. i. 241, and the var. *divaricata*, Syme, l. c. A form from dry banks near Binfield is between var. *coarctata*, Gaud. and var. *glaucaantha*, Reichb. Ic. Fl. Germ. et Helv. i. t. 159, f. 419 [409]; it is of a deep glaucous tint.

Var. *ANGUSTIFOLIA*, Parnell, Brit. Grasses, 79, is found at Wytham, Unwell Wood, &c., and in woods and hedges on the chalk area not unfrequently.

Var. *COARCTATA*, Gaud. l. c., occurs near Sulhampstead.

P. nemoralis is found in all the bordering counties.

P. compressa, Linn. Sp. Pl. 69 (1753), not of Herb., which is *P. pratensis*.

Gramen pratense medium culmo compresso, Buddle ex Ray, Syn. 409 (1724). Top. Bot. 492. Syme, E. B. xi. 125, t. 1770. Nyman, 835. Fl. Oxf. 351. Native. Glareal. Wall-tops, dry stony fields. Local, but from its being inconspicuous is liable to be overlooked. P. May-August. First found by Mr. H. Boswell about 1864, and recorded in *Britten's Contr.* 1871.

1. **Isis.** Cumnor. Buckland, *Boswell*. Wytham, the author in *Bot. Exch. Club Rep.* 1892. Near Lechlade. Botley. Longworth. Appleton.
2. **Ock.** Abingdon. Shippon. Cothill. Wootton. Dry Sandford. Kingston Bagpuze.
4. **Kennet.** Hungerford. Near Newbury.
5. **Loddon.** Hurley.

Var. *POLYNODA* (Parnell, l. c. t. 39, p. 84 as a species), with five-ribbed outer palea, has been noticed near Botley.

P. compressa is recorded for all the bordering counties.

P. Chaixii, Vill. Fl. Delph. 7 (1785).

P. rubens, Moench, Meth. 187 (1794). *P. sudetica*, Haenke in Jirasek, Beob. Riesengeb. (1791) 120. *P. sylvatica*, Chaix in Vill. Hist. Pl. Dauph. ii. 128 (1786). Reichb. Ic. Fl. Germ. et Helv. i. t. 153, f. 421, 422. Nyman, 833. Comp. Cyb. Br. 594.

Denizen or native. Sylvestral. Coppices. Very rare. P. May-June.

First recorded by the author in this *Flora*.

4. **Kennet.** In a coppice on the border of Wiltshire at the base of Riever Hill, slightly to the west of Gibbet Hill. In some plenty, growing with an immense quantity of *Milium effusum*, but with no introduced plants in the vicinity. The coppice is quite a small one, and would not appear to be of much use as a game covert.

In this locality I think it is probably native. The continental distribution would lead us to expect it to be a native of our country as it occurs in Norway, Denmark, Belgium, Germany, &c. I have described the situation of the plant to Professor Hackel of St. Poelton, and he agrees with me in thinking the plant is a native of Britain. Inquiries in the neighbourhood have so far failed to elicit any suggestion that the Grass has been planted. It may be well to bear in mind that in the seventies Mr. Brotherston found it in localities extending over many miles of country in Roxburgh and Berwick, and I have had it sent me from a wood in Ayrshire. Mr. H. C. Watson in *Comp. Cyb. Br.* calls it a casual, and suggests that it has been introduced with foreign hay or seeds, but this statement was made before its occurrence in the Scottish counties was reported. In Scotland the plant may have been passed over for *Festuca sylvatica*. Can it have been this plant which Mr. T. B. Flower in *Top. Bot.* reported as *F. sylvatica* for North Wilts?

P. pratensis, Linn. Sp. Pl. 67 (1753), not of Herb. (which is *P. alpina*).

Smooth-stalked Meadow Grass.

Gramen pratense, Ger. Em. 2.

Top. Bot. 492. Syme, E. B. xi. 127, t. 1771. Nyman, 834. Fl. Oxf. 350. Native. Pascual. Meadows, pastures, waysides, woods, wall-tops, heaths, &c. Abundant in all the districts. Next to *Poa annua* our commonest grass. Occurring in turf and on wall-tops in Reading. P. May-August.

First recorded in *Mavor's Agr. Berks*, 1809.

It offers a considerable range of variation.

Var. *subcaerulea* (Sm. E. B. t. 1004, as a species), a very well-marked variety, if indeed it is not a distinct species, which is rather common on dry heaths, pastures, waysides, and wall-tops in all the districts.

1. **Isis.** Buckland, *Boswell*. Lechlade. Wytham. Buscot. Longworth. Cumnor. Appleton.
2. **Ock.** Tubney. Besilsleigh. Frilford. Sunningwell. Radley. Sandford. Abingdon. The Ridgeway. Cholsey. Blewbury. Kingston Bagpuze.
3. **Pang.** In woods at De la Bere, Pangbourn, *Tufnail*. Hermitage. Ilsley. Hampstead Norris. Yattendon. Bradfield.

4. Kennet. West Ilsley. Newbury. Aldermaston. Burghfield. Mortimer. Padworth. Hungerford. Kintbury. Theale.

5. Loddon. Sonning Cutting, Farley Hill, and in woods at Bearwood. Maiden Early, *Tufnail*. Ascot. Windsor Park. Sunningdale. Bracknell. Blackwater. Sandhurst. Cookham. Wargrave.

Gaudin refers this with a query to var. *latifolium*, Fl. Helv. i. 242.

Var. *STRIGOSA*, Gaud. l. c. 260. *P. strigosa*, Hoffm. Deutsch. Fl. ed. 2, i. 44. Lechlade. Moultsford. Padworth. Blackwater. Kingston Bagpuze. Cumnor.

Var. *ANGUSTIFOLIA* (Linn. Sp. Pl. 67, and Herb. as a species), Gaudin, l. c. 259. Wytham. Moultsford. Ashampstead. Welford. Hampstead Marshall, &c.

A very flaccid form, var. *UMBROSA*, Parnell, l. c. 74, has been seen in a damp wood at Padworth, where a glaucous-leaved form was also noticed by the roadside.

A white-anthered form is not unfrequent.

On dry hedge-banks *Poa pratensis* is found as the var. *arida*, Parnell, l. c. 74; the slender form found on wall-tops, &c., is called *muralis* by Parnell, and a slender form with the lower branches of the panicle suddenly bent downwards, as in *Glyceria* (*Panicularia*) *distans*, found under trees or in shady places, is the var. *retroflexa*, Parn. l. c. 74.

A luxuriant dark green form, described by Parnell as var. *planiculmis*, l. c. 74, I have seen at Hinksey, Moultsford, &c., but these forms appear to me to be rather states than true varieties.

A curious form, with long lower branches to the panicle, as in *Poa costata*, Schum. Enum. Pl. Saell. i. 28, occurred at Hermitage.

Poa pratensis occurs in all the bordering counties.

P. trivialis, Linn. Sp. Pl. 67 (1753), and Herb. *Rough Stalked Meadow Grass*.

Gramen pratense vulgatius, Park. 1156.

Top. Bot. 492. Syme, E. B. xi. 129, t. 1773. Nyman, 834. Fl. Oxf. 350. Native. Pratal, &c. Meadows, pastures, borders of fields, damp woods, roadsides, &c. Common in all the districts. P. May-July.

First record. *Poa trivialis*. Bird Grass, Dr. Noehden. Moist meadows, &c., a valuable and productive grass, *Mavor's Agr. Berks*, 1809. Very common in the meadows at Blewbury and elsewhere, Mr. J. Lousley in *Russell's Cat*. 1839.

Poa trivialis is subject to considerable variation.

Var. *KOELERI* (DC. Syn. Fl. Gall. 131, as a species) = var. *glabra*, Doell, Rhein. Fl. 92, teste Hackel, probably var. *parviflora*, Parnell, l. c. 35, is the woodland form with smaller and paler florets and smoother leaf-sheaths, which occurs in damp woods and shady ditches¹, as Wytham

¹ Made synonymous with *Poa alpina* in Index Kewensis; surely in error.

Woods, Aldermaston, and Padworth Woods, at Cothill, Easthampstead, and in Windsor Forest (teste Prof. Hackel).

A luxuriant form with more numerous florets is the var. *MULTIFLORA*, Reichb. Ic. Fl. Germ. et Helv. i. t. 162, f. 420.

This and the last-named species may be readily distinguished by observing the ligule. In this species it is long and acute, in *P. pratensis* short and blunt.

P. trivialis is found abundantly in all the bordering counties.

PANICULARIA, Fabric. Enum. Hort. Helmst. 373 (1763), teste O. Kuntze. *Glyceria*, R. Br. Prod. Nov. Holl. 179 (1810).

P. fluitans, Kuntze, Rev. Gen. Pl. ii. 782 (1891). *Floating Meadow Grass*, *Flote Fescue*.

Festuca fluitans, Linn. Sp. Pl. 75 (1753) and Herb. *Poa fluitans*, Scop.

Fl. Carn. ed. 2, i. 73. *Gramen fluviatile*, Ger. Em. 14. *Glyceria fluitans*, R. Br. l. c.

Top. Bot. 487. Syme, E. B. xi. 96, t. 1752. Nyman, 830. Fl. Oxf. 348. Native. Paludal. Margins of rivers, canals, brooks, ditches, and ponds, often floating. Frequent and widely distributed. P. June–August.

First record. About Oxford, Sir Joseph Banks, 1760, and Sonning, Mr. S. Rudge, 1800, in Herb. Brit. Mus. The latter of the aggregate species.

Mr. Stillingfleet, in Misc. Tracts, ed. 3, 1775, informs us that Mr. Dean, a very sensible farmer at Ruscombe, in Berkshire, assured him that a 'field always lying under water of about four acres was covered with a kind of grass that maintained five farm horses in good heart from April to the end of harvest. . . .' This proved to be the *flote fescue* [*Festuca fluitans*], with a mixture of marsh bent, Curtis, Fl. Lond. fasc. i. t. 7, l. c. *Festuca fluitans*, Dr. Noehden, *Mavor's Agr. Berks*, 1809.

Var. *PEDICELLATA*, mihi. *G. pedicellata*, Towns. Ann. Nat. Hist. Ser. ii. (1850) 105. *Glyceria plicata*, Fries, var. *pedicellata*, Fl. Oxf. et auct. var.

1. Isis. Shrivvenham. Appleton.
2. Ock. Radley. Kennington. Abingdon. Challow. Cothill. Didcot. South Hinksey. Uffington.
3. Pang. Moulsoford. Hampstead Norris. Compton.
4. Kennet. Hungerford. Theale. Newbury. Mortimer.
5. Loddon. Barkham. Waltham. Ruscombe, &c.

Much more frequent than the above records show. In the *Flora of Oxfordshire* I placed this variety under *Glyceria plicata*, now, following Syme, I place it as a var. of *fluitans*; it may be a hybrid of the two plants.

When *P. fluitans* is reduced to a single spike, and has narrower and

acute leaves and larger anthers, it is the var. *sub-spicata* (Parnell, Grasses, 214, of *Poa fluitans*).

A viviparous form was found by Mr. F. Tufnail near the Kennet mouth, Reading, in 1896.

P. fluitans is found plentifully in all the districts; the seeds are often attacked by an ergot or smut.

P. plicata, mihi.

Glyceria plicata, Fries, Mant. iii. 176 (1849).

Top. Bot. 487. Syme, E. B. xi. 98, t. 1753. Nyman, 830. Fl. Oxf. 349. Native. Paludal. Ditches, margins of ponds and slow streams, often growing in the water. P. June–October. Not uncommon and widely distributed.

First record. *G. fluitans*, var. *plicata*, Mr. H. Boswell and Mr. H. C. Watson in *Britt. Contr.* 1871.

1. Isis. Wytham. Faringdon. Shrivenham. Appleton. Cumnor.
2. Ock. South Hinksey, *Lawson*, 1872, in *Herb. Oxf.* Frilford. Wootton. Abingdon. Uffington. Shippon. Aston Tirrel. Blewbury. Didcot.
3. Pang. Pangbourn Marsh, *Tufnail*. Bradfield. Tidmarsh. Moultsford.
4. Kennet. Nearly as common as *G. fluitans* throughout the Reading district, *Tufnail*. Theale. Padworth.
5. Loddon. Shottesbrooke. Early. Ruscombe. Wokingham. Windsor Park. Ruscombe.

Var. *DEPAUPERATA* (Crépin, Pl. Rares Crit. Belg. fasc. iv. 52, sub *Glyceria*).

1. Isis. Wytham.
2. Ock. Hinksey. Kennington. Uffington.
3. Pang. Tilehurst.
5. Loddon. Coleman's Moor. Warren Row. Finchampstead.

P. plicata is recorded for all the bordering counties except East Gloucestershire.

P. aquatica, Kuntze, Rev. Gen. Pl. ii. 782 (1891). *Reed Meadow Grass*. *Gramen majus aquaticum*, Ger. Em. 6. *Poa aquatica*, Linn. Sp. Pl. 67, and Herb. *Glyceria spectabilis*, Mert. & Koch, Deutsch. Fl. i. 586. *G. aquatica*, Sm. Engl. Fl. i. 116 (1824), and Wahl. Fl. Gothob. 18 (1820).

Top. Bot. 486. Syme, E. B. xi. 100, t. 1751. Nyman, 830. Fl. Oxf. 348. Native. Paludal. Sides of rivers, canals, and brooks. Common and widely distributed. P. July–August.

First record. *Poa aquatica*, *Mavor's Agr. Berks*, 1809. Given for Ham Marsh in *Russell's Cat.* 1839.

The fruits are often infected with *Ustilago longissima*.

P. aquatica is abundant by our larger streams, and makes a conspicuous feature in our river vegetation from its handsome panicle and

yellowish green foliage, which afford a pleasing variation from the bluish green leaves and dark purple panicles of *Phragmites*.

A viviparous form was noticed near Eynsham in 1892.

Panicularia aquatica is found in all the bordering counties.

****P. DISTANS**, Kuntze, Rev. Gen. Pl. ii. 782 (1891).

Poa distans, Linn. Mant. i. 32 (1767). *Sclerochloa distans*, Bab. Man. Brit. Bot. 370 (1843). *Festuca distans*, Kunth, Rev. Gram. i. 129. *Glyceria distans*, Wahl. Fl. Upsala, 36 (1820).

Top. Bot. 489. Syme, E. B. xi. 104, t. 1755. Nyman, 823. Fl. Oxf. 349.

Casual. Waste places. Rare. A. July–September.

First recorded in this Flora from the railway-side at Didcot.

The record in the Well. Coll. List of 1874 is doubtless a misnomer.

FESTUCA, Linn. Gen. n. 82.

F. rigida, Kunth, Rev. Gram. i. 129 (1833). *Hard Meadow Grass*.

Poa rigida, Linn. Amoen. Acad. iv. 265 (1759), and Herb. *Sclerochloa rigida*, Beauv. Agrost. 97. *Scleropoa rigida*, Griseb. Spic. Fl. Rumel. ii. 431. *Glyceria rigida*, Sm. Engl. Fl. i. 119 (1824).

Top. Bot. 490. Syme, E. B. xi. 108, t. 1758. Nyman, 832. Fl. Oxf. 349.

Native. Glareal. Dry calcareous and sandy ground, wall-tops, railway ballast; preferring sunny spots. Local. A. May–July.

First record. *Poa rigida*, Dr. Noehden, *Mavor's Agr. Berks*, 1809.

1. **Isis**. Near Lechlade. Cumnor. Wytham. Appleton.

2. **Ock**. Denchworth, *Wait*. Ferry Hinksey. Marcham. Botley. Radley. Cothill. Wantage. Wootton. South Hinksey. Kingston Bagpuze.

3. **Pang**. Moultsford. East Ilsley.

4. **Kennet**. Reading Abbey. Aldermaston. Benham. Enborne. West Ilsley.

5. **Loddon**. Early. Sandhurst. Maidenhead.

Festuca rigida is found in all the bordering counties.

F. Myuros, Linn. Sp. Pl. 74 (1753), and Herb. *Capon's-tail Grass*, *Wall Fescue Grass*.

F. Pseudomyurus, Soyer-Will. in Ann. Sc. Nat. Sér. i. vii. (1826) 445. *Vulpia Myurus*, Gmel. Fl. Bad. i. 8 (1805). *Gramen murorum spica longissima*, Ger. Em.

Top. Bot. 495. Syme, E. B. xi. 141, t. 1781. Nyman, 820. Fl. Oxf. 343.

Native. Glareal. Wall-tops, dry sandy soil, usually near houses.

Local and not common. A. June–August.

First certain record. Marcham. *F. pseudo-myurus*, the author in *Rep. of Bot. Rec. Club*, 1881.

1. **Isis**. Longworth. Cumnor. Appleton.

2. **Ock**. Marcham, l. c. Wootton. South Hinksey. Abingdon. Sandford. Cothill. Kingston Bagpuze. Frilford.

3. **Pang.** Streatley.

4. **Kennet.** Near Newbury.

5. **Loddon.** Sonning, *Tufnail*. Very fine at Sunninghill. Swallowfield, growing with the next species. Roadside near Bearwood. Ascot. Loddon Bridge. Twyford.

Although this plant is closely allied to, I believe it is quite distinct from *F. sciuroides*. The seeds (fruits) of one can be picked out from those of the other plant.

F. Myuros is reported from all the bordering counties.

F. sciuroides, Roth, Bot. Abh. 43. *Squirrel's-tail Grass*.

Vulpia sciuroides, Gmel. Fl. Bad. i. 9 in obs. (1805). *F. bromoides*, Sm., Parnell, &c., and of Linn. according to Index Kewensis.

Top. Bot. 495. Syme, E. B. xi. 142, t. 1782. Nyman, 820. Fl. Oxf. 343.

Native. Glareal. Sandy pastures, heaths, walls, dry banks, and sandy fallow fields. Locally common. More frequent than the preceding species. A. May-June.

First found by Mr. Baxter about 1840. Recorded in Britt. Contr. 1871.

1. **Isis.** Cumnor, Boswell. Appleton.

2. **Ock.** Bagley Wood, 1840 (unnamed sp.), Baxter in Herb. Oxf. Ferry Hinksey. Wootton. Tubney. Marcham. Shippon. Plentiful on Boar's Hill in sandy fields.

3. **Pang.** Oare Common. Cold Ash Common. Bucklebury.

4. **Kennet.** Newbury. Greenham Common. Aldermaston. Hampstead Marshall. Snelsmore. Burghfield.

5. **Loddon.** Ascot. Swallowfield. Sunninghill. Coleman's Moor. Sonning. Twyford. Sandhurst. Ambarrow. Wellington College. Finchampstead. Bracknell.

On very dry heaths, as on Bucklebury Common, the plant becomes very small, *f. nana*, the *F. bromoides*, var. *nana*, Parnell, Gr. Brit. 128.

F. sciuroides is recorded for all the bordering counties.

F. ovina, Linn. Sp. Pl. 73 (1753), and Herb. for the greater part. *Sheep's Fescue Grass*.

Top. Bot. 495. Syme, E. B. xi. 143, t. 1783. Nyman, 829. Fl. Oxf. 348. Parnell, Grasses Scot. t. 56.

Native. Glareal, &c. Dry pastures, heaths, commons, and chalk downs. Locally abundant. P. May-June.

First record. *F. ovina*, Dr. Noehden. Very grateful to sheep, *Mavor's Agr. Berks*, 1809.

F. ovina, a very polymorphic species, is absent from considerable areas of the county, but when it occurs it usually does so in abundance.

VRR. PALUDOSA, Gaud. Fl. Helv. i. 276 (1828) = var. *capillata*, Hackel, Mon. Fest. 85 = *F. capillata*, Lam. Fl. Fr. iii. 597 = *F. tenuifolia*, Sibth. Fl. Oxon. 44 = *F. ovina*, var. *tenuifolia*, Syme, E. B. t. 1784. Sutton, Perm. Past. t. x.

This awnless, long, narrow-leaved plant is widely distributed through the county, but is more frequent than the type in the sandy tracts of the south-west. Were it not for Professor Hackel's decided opinion I should have kept it as a distinct species. It sometimes occurs with the type, and with us there appears to be less difficulty in discriminating the two plants than there is in separating forms of *F. rubra* from *F. ovina*.

2. Ock. Boar's Hill. 3. Pang. Heath Wood. Hermitage. Cold Ash. 4. Kennet. Aldermaston. Greenham. Upton. Burghfield. Mortimer. Wickham. 5. Loddon. Common about Sunningdale and Ascot. Bracknell. Ambarrow, the author in *Exch. Club Rep.* 1892. Sandhurst. Sunninghill, the author in *Rep. of Bot. Exch. Club*, 1888. Windsor Park. Bagshot. Broadmoor.

Var. *VULGARIS*, Koch, Syn. Fl. Germ. 812 (1837).

This is a common plant on the chalk downs in the Isis, Ock, Pang, Kennet, and Loddon districts. It offers various modifications.

Sub-var. *FIRMULA*, Hackel, l. c. 87, occurs as a larger plant with straddling culms on Frilford Heath, where the plant is rather glaucescent, and has much of the appearance of the *trachyphylla* form of *duriuscula*. In the Kennet district it occurs at Padworth, and in the Loddon near Park Place and Bisham. In Oxfordshire it is common in fields under Stow Wood.

Var. *DURIUSCULA*, Koch, Syn. Fl. Germ. 812 (1837), has been gathered near Newbury by Mr. Jackson, and I have it from Padworth and near Henley. Professor Hackel says that the Newbury plant is somewhat intermediate between var. *duriuscula* and var. *vulgaris*.

Var. *DURIUSCULA*, sub-var. *TRACHYPHYLLA*, Hackel, l. c. 91.

2. Ock. On a piece of old pasture near the railway, not far from Radley Station. Frilford. 4. Kennet. Padworth.

Professor Hackel tells me that *Festuca caesia*, Sm. has leaves which have a coating of wax; this is absent from the leaves of sub-var. *trachyphylla*.

F. ovina is found in all the bordering counties.

[*F. HETEROPHYLLA*, Lam. Fl. Fr. iii. 600 (1778), not of Haenke or Host.

F. rubra, sub-sp. *heterophylla*, Hackel, Mon. Fest. 130.

Was found by me in the pleasure-grounds of Chiselhampton House, Oxfordshire, growing with *Lilium Martagon* and *Tulipa sylvestris*, but Mrs. Pochin was not aware of grass being sown there. It has also been recorded for Hants and Surrey, but doubts have been expressed as to its being native.]

F. rubra, Linn. Sp. Pl. 74 (1753), and Herb.

F. duriuscula, Syme and Sm. in part.

Top. Bot. 495. Syme, E. B. xi. 145, t. 1785. Nyman, 827. Fl. Oxf. 348. Native. Pascual, &c. Dry pastures, roadsides, dry woods and heaths, wall-tops, &c. Locally common and widely distributed. P. June-August.

First probable record. *F. duriuscula*, Hard Fescue, Dr. Noehden. Dry pastures and meadows, and *F. rubra*, Purple Fescue, Dr. Noehden. High heaths and sterile pastures, *Mavor's Agr. Berks*, 1809. First certainly recorded by the author.

1. **Isis.** Faringdon. Wytham. Cumnor. Longworth. Shrivenham, &c.
2. **Ock.** Blewburton Hill. Lockinge. Sunningwell. Hinksey. Wootton. Shippon.
3. **Pang.** Pangbourn. Bradfield. Bucklebury.
4. **Kennet.** Mortimer. Aldermaston. Kintbury. Hungerford, &c.
5. **Loddon.** Windsor Park. Sandhurst. Farley Hill. Ambarrow. Finchampstead.

The above localities are for *F. eu-rubra* of Hackel's *Monographia Festucarum Europaearum*.

F. RUBRA, sub-var. **BARBATA**, Hackel. *F. barbata*, Schrank, Prim. Fl. Salisb. 46 (1792). *F. rubra dumetorum*, Gaud. Fl. Helv. i. 686 (1828). *F. rubra*, var. *pubescens*, Gren. et Godr. Fl. Fr. iii. 574.

1. **Isis.** Wytham.
2. **Ock.** Hinksey.
3. **Pang.** Compton.
4. **Kennet.** Aldermaston.
5. **Loddon.** Windsor Park. Park Place.

Probably not unfrequent, but I have only cited specimens seen by Prof. Hackel.

Var. **COMMUTATA**, Gaud. Fl. Helv. i. 287 (1828) = var. *fallax* (Thuill. Fl. Par. ed. 2, 50 (1799), as a species). Hackel, Mon. l. c. 142.

4. **Kennet.** Padworth. Brimpton.
5. **Loddon.** Near Swallowfield. Windsor Park.

This variety is treated as a sub-species by Nyman.

F. rubra occurs in all the bordering counties.

F. elatior, Linn. Sp. Pl. 75 (1753). Fl. Suec. ed. 32, and Herb. *Tall Fescue Grass*.

Top. Bot. 497. Syme, E. B. xi. 150, t. 1789. Nyman, 825. Fl. Oxf. 347. Sutton, Perm. Past. t. vii.

Native. Pratal. Wet pastures, sides of rivers, marshes, cultivated fields, damp hedge-rows, &c. Common and widely distributed. A very common grass in the meadows of the Thames. P. June-August.

First record. *F. pratensis*, Russell's Cat. 1839, and by Mr. G. G. Mill in Phyt. i. 995, 1843.

Var. **PRATENSIS** (Huds. Fl. Angl. 37 (1762), as a species), Syme, E. B. xi. 159, t. 1791. Usually found in drier situations than the preceding species, and is often found in seed crops. It occurs frequently in all the districts.

1. **Isis.** Wytham. Appleton. Longworth. Faringdon. Watchfield. Bourton.
2. **Ock.** Kennington. South Hinksey. Radley. Sutton Courtney. Wallingford. Cholsey. Marcham.

Blewbury. Hanney. Kingston Bagpuze. 3. Pang. Moulshurst. Tilehurst. Reading. 4. Kennet. Southcote. Newbury. Kintbury. 5. Loddon. Sonning. Wargrave. Hurley. Cookham. Maidenhead. Windsor.

Var. *LOLIACEA* (Huds. Fl. Angl. 38 (1762), as a species). *F. elatior* × *Lolium perenne*, Focke. *F. elongata*, Ehrh. Beitr. vi. 83 (1791). *Lolium festuaceum*, Link, Hort. Berol. i. 273 (1827).

Top. Bot. 497. Syme, E. B. xi. 153, t. 1792.

1. *Isis*. Near Godstow, by the Thames side on the Berkshire side of the stream.
2. *Ock*. Near Oxford, Boswell in *Britt. Contr.* Near Abingdon.
3. *Pang*. Fringing the river for a couple of miles. Between Moulshurst and South Stoke in the Thames meadows. See *Rep. of Bot. Exch. Club*, 1888.
5. *Loddon*. Moist meadows near Eton, *Gotobed*. Shiplake Meadows, *Tufnail*. Near Bisham.

Sub-var. *PSEUDOLOLIACEA*, Hackel, l. c. 151. *F. pseudololiacea*, Fries, Summ. Veg. Scand. 75 (1846), has been seen near South Hinksey on waste ground, &c., but it appears to be only a starved form.

Var. *loliacea* is extremely abundant in the rich alluvial meadows of the Thames, stretching at intervals from Eynsham to Shiplake, and contributing largely to the hay crops. Mr. Tufnail agrees with me in considering it to be an undoubted hybrid; he says it has remained constant under cultivation for the past ten years in dry gravelly soil. Neither in its native habitat nor under cultivation does it perfect seeds. Often a form is met having branching lower spikelets, giving the plant the appearance of *F. pratensis*, but, like the typical *F. loliacea*, proved, Mr. Tufnail tells me, infertile under cultivation.

F. elatior occurs in all the bordering counties.

F. arundinacea, Schreb. Spic. Fl. Lips. 57 (1771), not of Vill. Prosp. 17, vide *Indice Kewensi*.

F. elatior, var. *arundinacea*, Syme. *F. elatior*, Linn. Sp. Pl. 75 teste Pryor, Fl. Herts. *Bucetum elatius*, Parnell, Grasses Scot. 107, t. 46.

Top. Bot. 497. Syme, E. B. xi. 151, t. 1790. Nyman, 824.

Native. Paludal. Sides of rivers and wet ditches. Rare. P. June-July.

First recorded by the author in 1880.

1. *Isis*. Near Wytham.
2. *Ock*. Plentiful in Marcham Meadows. Ifley Meadows. Sandford. Kennington.
3. *Pang*. South Stoke. Near Tilehurst.
4. *Kennet*. Meadow near Theale, &c.
5. *Loddon*. Sonning, *Tufnail*. Near Maidenhead.

F. elatior, Linn. sens. ampl., sub-spec. *ARUNDINACEA*, var. *GENUINA*, sub-var. *STRICTIOR*, Hackel, l. c. 154 = *F. elatior*, var. *GENUINA*, Syme, E. B. xi. 151, t. 1789.

Not uncommon by our riversides and in wet meadows.

1. **Isis.** Near Lechlade. Buscot. Radcot. Appleton. Longworth. Wytham.
2. **Ock.** Kennington. Abingdon. Sutton Courtney. Wittenham. Kingston Bagpuze.
3. **Pang.** Mouldsford. Tilehurst.
4. **Kennet.** Midgham. Theale. Southcote.
5. **Loddon.** Sonning. Wargrave. Hurley. Cookham. Bray.

F. arundinacea is found in all the bordering counties.

BROMUS, Linn. Gen. n. 83 (Mont. 32).

B. giganteus, Linn. Sp. Pl. 77 (1753), and Herb. *Tall Brome Grass.*

Festuca gigantea, Vill. Hist. Pl. Dauph. ii. 110 (1787). *Bucetum giganteum*, Parnell, Grasses Scot. t. 47, 108.

Top. Bot. 498. Syme, E. B. xi. 155, t. 1793. Nyman, 824. Fl. Oxf. 347. Native. Septal. Sylvestral. Shady hedge-banks, woods, &c. Common and generally distributed in suitable situations. P. July-Aug.

First record. Near Oxford, Sir Jos. Banks, 1760, in *Herb. Brit. Mus.* *B. giganteus*, Russell's Cat. 1839. *Festuca gigantea*, Bisham Wood, Mr. G. G. Mill in *Phyt.* i. 995, 1843.

Var. **TRIFLORUS** (Linn. Sp. Pl. ed. 2, 115 (1762), as a species). *Festuca triflora*, Sm. E. B. t. 1918. Syme, E. B. xi. 155, t. 1794.

1. **Isis.** Near Cumnor.
2. **Ock.** South Hinksey. Radley.
3. **Pang.** Tilehurst.
4. **Kennet.** Aldermaston.
5. **Loddon.** Shottesbrooke.

Bromus giganteus is an adornment of many of our old hedgerows on a moist soil, from its gracefully curved flowering stem and open panicles.

It is found in all the bordering counties.

B. ramosus, Huds. Fl. Angl. 40 (1762), and of Linn. MS., but not of Linnaeus Mantissa.

B. asper, Murray, Prod. Stirp. Gotting. 42? and auct. angl. *B. hirsutus*, Curt. Fl. Lond. ii. t. 8 (1776).

Top. Bot. 498. Syme, E. B. xi. 156, t. 1795. Nyman, 821-822. Fl. Oxf. 344. Native. Septal. Sylvestral. Woods, copses, hedges, and shady places.

A handsome species which is abundant in some localities and found in all the woodland tracts of the county. P. May-Aug.

First record. *Festuca graminea perennis hirsuta, gluma longiore dumetorum, spica divisa*. In Godstow Copse near Oxford, Mr. Bobart in Ray, Syn. 235, 1690. *B. asper*, Russell's Cat. 1839. Sunninghill, Sir Jos. Banks in *Herb. Brit. Mus.* 1773, and Bisham Wood, Mr. G. G. Mill in *Phyt.* 995, 1843.

The copse at Godstow is just within the Oxfordshire boundary, but *Bromus ramosus* is common in the vicinity, and is especially plentiful and luxuriant in Wytham Woods.

The plant common in all our woodland areas is the *Bromus serotinus*, Beneken, Bot. Zeit. (1845) 724, which has all the leaf-sheaths covered with spreading hairs, and unequal glumes.

The var. *BENEKENII* = *B. asper*, var. *Benekenii*, Syme, l. c., which has the upper sheaths sub-glabrous and nearly equal glumes, I have found in the neighbourhood of Streatley, where it has also been gathered by Professor Farmer, and I have also seen it near Frilsham.

B. ramosus is found in all the bordering counties.

B. erectus, Huds. Fl. Angl. 39 (1762). Upright Brome Grass.

B. agrestis, All. Fl. Ped. ii. 249, and of Linn. MS. in Herb.

Top. Bot. 499. Syme, E. B. xi. 159, t. 1796. Nyman, 822. Fl. Oxf. 344. Native. Glareal. Pascual. Dry limestone and chalky pastures and downs. Banks of railways. Locally abundant. Distinctly a plant of limestone or chalk. P. June–August.

First record. *Festuca Avenacea sterilis, spicis erectis*. In the hedges beyond Botley near Oxford, Mr. Bobart in Ray, Syn. 237, 1690, and first as a British plant.

1. **Isis.** Hedges beyond Botley, Bobart. Buckland, Boswell. Cumnor Hill. Coleshill. Buscot. Wytham. On a wall in Cumnor. Plentiful on the limestone in this district.
2. **Ock.** Foxcombe Hill, Boswell. South Hinksey. Ferry Hinksey. Besilsleigh. Happy Valley on Boar's Hill. Frilford. Cothill. Abundant on the White Horse Hill. Kingston Bagpuze. West Hanney. Wantage Downs. Blewburton Camp. Wootton. Abingdon. Steventon. Uffington. Abundant on the limestone in this district.
3. **Pang.** Streatley, W. M. Newbould. Unwell Wood, Lawson in Herb. Oxf. Abundant on the Moultsford Downs. East Ilsley Downs. Ashampstead. Ashridge. Compton. Basildon. Sulham. Abundant on the Chalk.
4. **Kennet.** Lane leading to North Heath, Russell's Cat. 1839. Mortimer, Tufnail. Hungerford. Inkpen. Lambourn Downs. West Ilsley. Ashbury. Idstone. Gibbet Hill. Abundant on the Chalk.
5. **Loddon.** Bisham Wood, and on the Chalk frequently, Mill. Culham. Wargrave. Near Cookham. Bray. Park Place.

The var. *HIRSUTUS*, Parnell, Grasses Brit. 120, 1845. Syme, l. c., which has the lower pale hairy all over, I have seen from Hinksey, Uffington, Moultsford, Radley, &c., but all gradations may be found. Professor Hackel names some specimens var. *subvillosus*, Regel.

The anthers, which are at first bright yellow, change to reddish purple; the grass is very handsome when the flowers are fully expanded.

The specimen, determined by Hudson himself from Pulteney's

Herbarium, is hairy, so that if a variety is formed it should be var. *glabrescens*, Druce in Bot. Exch. Club Rep. (1892) 393.

B. erectus is found in all the bordering counties.

[**B. MADRITENSIS**, Linn. Amoen. Acad. iv. 265 (1759), and of Herb.

B. ciliatus, Huds. Fl. Angl. 40 (1762). *B. muralis*, Huds. Fl. Angl. 150 (1778).

B. diandrus, Curt. Fl. Lond. vi. t. 5. Syme, E. B. xi. 160, t. 1797.

Is recorded on old, and probably incorrect, authority for Oxfordshire, and it is found in Surrey, Wilts, and maritime Hampshire.]

***B. TECTORUM**, Linn. Sp. Pl. 77 (1753), and Herb.

Comp. Cyb. Br. 596. Nyman, 821.

Casual. Waste places. Very rare. Grandpont. Didcot.

It has been found in Oxfordshire and Hampshire.

***B. squarrosus**, Linn. Sp. Pl. 76 (1753), and Herb.

Comp. Cyb. Br. 597. Nyman, 824. Parnell, Grasses Brit. 280, t. 128.

Casual. A few plants were found near Wytham Mill, and a solitary specimen by the river near Folly Bridge.

***B. PATULUS**, Mert. & Koch, in Roehl. Deutsch. Fl. i. 685. Parnell, Grasses Brit. 278, t. 127.

Casual. By the riverside between Oxford and Iffley in 1892.

B. sterilis, Linn. Sp. Pl. 77 (1753), and Herb. *Barren Brome Grass*.

Bromos sterilis, Ger. Em. 76.

Top. Bot. 498. Syme, E. B. xi. 163, t. 1799. Nyman, 821. Fl. Oxf. 344.

Native. Viatical. Agrestal. Waysides, wall-tops, waste and cultivated ground. Very common. A. June-August.

First record. *B. sterilis*, Dr. Noehden, *Mavor* in *Agr. Berks*, 1809.

This grass is a prominent feature in many of our cultivated and fallow fields, and is too generally distributed to need localities being given. Probably a condensed form was mistaken for *B. madritensis* in Oxfordshire.

B. sterilis occurs in all the bordering counties.

***B. secalinus**, Linn. Sp. Pl. 76 (1753), and Herb. *Rye Brome Grass*.

Serrafalcus secalinus, Bab. Man. Brit. Bot. 374 (1843).

Top. Bot. 499. Syme, E. B. xi. 165, t. 1800. Nyman, 822. Fl. Oxf. 345.

E. B. t. 1171, good figure, but panicle too long. Parnell, Grasses Scot. t. 49, and Gr. Brit. t. 121-3.

Colonist. Agrestal. Cornfields, pastures, waste places. Not uncommon, but rather sporadically scattered over the county. A. May-July.

First record. *Mr. Winkfield* in *Herb. Oxf.* about 1805.

1. *Isis*. Near Wytham Mill.

2. *Ock*. Little Wittenham, *W. Cozen*. Ferry Hinksey. Didcot. Upton.

3. *Pang*. Bucklebury. East Ilsley. Tilehurst.

4. *Kennet*. Mortimer, *Tufnail*. Newbury. Silchester.

5. Loddon. Sonning, *Tufnail*; *Winkfield*, 1805. Shinfield Green. Maidenhead. Twyford. Tilehurst.

Var. *VELUTINUS* (Schr. Fl. Germ. i. 349, as a species). *B. secalinus*, var. *velutinus*, Parnell, Grasses Brit. 270. Syme, E. B. xi. 166, t. 1801.

1. Isis. Appleton. 2. Ock. Grandpont. Near Abingdon.

3. Pang. Tilehurst. 5. Loddon. Near Jouldern's Ford.

The form of *B. secalinus* with long awns appears to be the more frequent; it is, according to Grenier and Godron, the *Bromus elongatus*, Gaud. Agrost. i. 303.

Var. *MUTICUS* = *Bromus arvensis*, Weigel, Obs. p. 6, not of Linn., also has occurred at Wytham, near the Mill.

B. secalinus is recorded for all the bordering counties except East Gloucestershire.

B. racemosus, Linn. Sp. Pl. ed. 2, 114 (1762), and Herb., not of Knapp.

Serrafalcus racemosus, Parl. Pl. Rar. Sic. fasc. ii. 14 (1840). *Bromus arvensis*, Knapp, Gram. Brit. t. 82, not of Linn.

Top. Bot. 499. Syme, E. B. xi. 167, t. 1803. Nyman, 823. Fl. Oxf. 346.

Native. Pascual. Meadows and pastures. Locally common. B. June-July.

First record. Near Old Windsor, Mr. Winch, in *New Bot. Guide*, 1835.

1. Isis. Thames meadows near Lechlade, and at intervals along the river's course to Oxford, but not so generally distributed as *B. commutatus*.

2. Ock. Marcham. Hinksey. Didcot. In the Thames meadows at Kennington, and at intervals as far as to Wallingford, often merging into *commutatus*.

3. Pang. Ashampstead. Thames meadows.

4. Kennet. Near Reading, *Boswell*. Hungerford. Padworth.

5. Loddon. Near Old Windsor, *Winch*, l. c. In the meadows under Bisham Wood by the side of the river, *Mill*. Sonning, *Tufnail*. Bray, and in many of the Thames meadows.

B. racemosus is found in all the bordering counties, as I have found it in East Gloucestershire.

B. commutatus, Schr. Fl. Germ. i. 353 (1806).

Serrafalcus commutatus, Bab. Man. Brit. Bot. 374 (1843). *B. racemosus*, var. *commutatus*, Doell, Fl. Bad. 138.

Top. Bot. 499. Syme, E. B. xi. 168, t. 1802. Nyman, 822. Fl. Oxf. 345.

Native. Pratal, &c. Rich meadows, field borders, cultivated ground, &c. Locally abundant. May-September.

First record. Cumnor, Mr. Baxter in *Herb. Oxf.* 1823. See the author in *Rep. of Bot. Exch. Club*, 1888, for certain record.

1. Isis. In a cornfield by the side of the foot-road going from Dean Court to Cumnor, September, 1823, *Baxter*. Radcot, the author in

- Rep. of Bot. Exch. Club*, 1888. Wytham, the author, l.c., 1892. Plentiful in most of the Thames meadows, as at Lechlade, Buscot, Radcot, Appleton, Longworth, Cumnor, &c.
2. Ock. Marcham. Hinksey. Radley. Frilford. Blewburton. Upton. Shippin. Uffington.
 3. Pang. Moultsford. Basildon.
 4. Kennet. Aldermaston. West Ilsley. Bagnor. Inkpen. Hungerford. Kintbury.
 5. Loddon. On the Reading road near Hurst, *Melville*. Finchampstead. Jouldern's Ford. Sonning. Bisham. Bray. Windsor.

Although I have kept *B. racemosus* and *B. commutatus* as distinct species, I have no doubt that they are merely forms of one polymorphic plant, which might be better expressed by considering *B. commutatus* as a var. of *B. racemosus*. With reference to this opinion, I may quote from a letter which Professor Hackel, of St. Poelton, wrote me in 1894: 'I paid particular attention to the forms of *B. racemosus* and *B. commutatus* from the neighbourhood of Oxford, of which you write that you are at a loss to distinguish them. I must confess that I also have altered my opinion on the value of the distinctive characters of the two species. I am now inclined to see in them only varieties of one species, which is to bear the older name of *B. racemosus*. The intermediates between the two plants are too numerous, the differences too weak, as to be equal to those between good species. Some of the characters, as for example the outlines of the flowering glumes seen from aside, are almost illusive, because they do not coincide with those of the form of panicle.' Prof. Hackel kindly drew up the following diagnosis of the two plants:—

'*B. racemosus*, Linn. var. *GENUINUS*: panicle short, after flowering erect, inferior branches no more than one-third the length of the panicle. Spikelets almost ovate or ovate-lanceolate, measuring from the base to the apex of the sixth flower not more than 12–13 mm., anthers 2–2.5 mm. long.

'Var. *COMMUTATUS*: panicle, in typical specimens, after flowering drooping, much longer; the inferior branches about one-half of the length of the panicle. Spikelets lanceolate or ovate-lanceolate, measuring from the base to the apex of sixth flower 15–16 mm., anthers 1.5, rarely 2 mm. long.'

B. commutatus, although often found in the rich meadows of the Thames and its tributaries, in which *B. racemosus* also occurs, is almost exclusively the plant of cornfields, in which I do not remember to have seen *B. racemosus*.

B. commutatus offers a wide range of forms, irrespective of the intermediates, with *B. racemosus*. An extreme form is one with very compound panicle, in which the individual spikelets are considerably larger than in the ordinary form, and contain eight or more florets = the var. *MULTIFLORUS*, Parnell, l.c. 274; this I have seen from the Thames meadows and from Moultsford. Var. *pubescens*, a form in which the spikelets are slightly pubescent, also occurs, as at Hinksey, Cumnor, Blewbury, Benham, Twyford, &c.

A form was gathered near Oxford in which the rigid panicle branches were divaricate, and plants with purplish glumes are also found.

Prof. Hackel kindly gave me the means of distinguishing *B. secalinus* from

B. commutatus when they are in the flowering condition; namely, in *B. commutatus* the upper pales are shorter than the inferior, in *B. secalinus* they are longer than the inferior pales.

B. commutatus is found in all the bordering counties.

B. hordeaceus, Linn. Sp. Pl. 77 (1753), and Herb. *Soft Brome Grass*.

B. mollis, Linn. Sp. Pl. ed. 2, 112 (1762). *Serrafalcus mollis*, Parl. Pl.

Rar. Sic. fasc. ii. 14 (1840). *S. hordeaceus*.

Top. Bot. 501. Syme, E. B. xi. 169, t. 1804. Nyman, 823. Fl. Oxf. 346.

Native. Pascual, &c. Meadows, waysides, cultivated and waste ground and fallow fields. Abundantly distributed through the county. A. or B. May-August.

First record. *B. mollis*. Little esteemed as a grass, and noxious in cornfields, *Mavor's Agr. Berks*, 1809.

Var. *GLABRESCENS* (Coss. Fl. Env. Paris, 654, 1845, sub *B. mollis*) = *B. racemosus*, Parnell, Grasses Scot. 111, not of Linn. *B. mollis leiostachys*, Fries, Summ. Veg. Scand. 76.

Less frequent on the whole than the type, but on the Chalk often in considerable quantity; it is usually a smaller and more graceful plant.

1. **Isis**. Binsey, but in Berkshire. Wytham. Lechlade. 2. **Ock**. Hinksey. Blewbury. Upton. Cholsey. Wantage. Letcombe Bassett. Blewburton Camp, *the author in Rep. of Bot. Exch. Club*, 1888. Unwell Wood, *Herb. Oxf.* 3. **Pang**. Compton. East Ilsley. Bradfield. Bucklebury. Beenham. Yattendon. Moulshord. Basildon. Sulham. Rather common in this district.
4. **Kennet**. West Ilsley. Peasemore. Lambourn. Hungerford. Aldermaston. Padworth. Theale. 5. **Loddon**. Hurley. Bisham. Twyford. Wargrave. Aston Ferry. Maidenhead. Cookham.

A form (*ovalis*) with smaller and more oval spikelets is the *B. mollis*, var. *ovalis*, Parnell, l. c. 258, t. 117.

B. hordeaceus is common in all the bordering counties.

B. interruptus, Druce in Pharm. Journ. Suppl. Oct. 5 (1895), Journ. Bot. Dec. (1895), and in Linn. Soc. Journ. (1896) 426-30.

B. mollis, var. *interrupta*, Hackel in Rep. of Exch. Club (1888), 240. *Serrafalcus interruptus*.

Native or colonist. Agrestal. Cultivated fields, very local, but abundant when it occurs. B. or P. May-June.

First found by the author and recorded as *B. mollis*, var. *interruptus*, in the Rep. of Exch. Club for 1888.

2. **Ock**. Very abundant in a field of seeds near Upton.

3. **Pang**. In a field on the Chalk between Blewburton Camp and Unwell Wood, July, 1888. In arable field near Moulshord. Among 'seeds' near Streatley.

5. Loddon. Plentiful in a field of Sainfoin near Park Place, Messrs. Stanton and Tufnail.

The most striking feature of this plant when first seen is the inflorescence, which differs from all other species of *Bromus* known to me, in that single short stiff pedicels arise alternately right and left of the main rachis, each bearing at its extremity three to five sessile (or in some cases short-stalked) spikelets. To this fact is due the peculiar and strikingly interrupted and compact appearance of the whole inflorescence, which is made up of clustered groups of three to five spikelets. This peculiar feature does not obtain in its nearest allies, since in them four to five slender pedicels of various lengths arise at the same level on the rachis, each bearing one or two, rarely more, spikelets; hence, the inflorescence in these species is more loosely continuous.

As will be seen, the alliance of *B. interruptus* is essentially with *B. hordeaceus*, since the large or inner glume extends half-way to the apex of the sixth floret (the third on the same side), whereas in *B. racemosus* and *B. commutatus* it reaches only to the fourth flower (the second on the same side). The texture and pubescence, too, of the spikelets of *B. interruptus* are similar to those of *B. hordeaceus*. The character which at once separates *B. interruptus* from *B. hordeaceus*, *B. commutatus*, *B. racemosus*, &c., is to be found (as pointed out to me by the Rev. L. V. Lester, M.A.) in the upper pale (the inner pale of Parnell), which is split to the base, and is usually much shorter than the outer or lower pale. *B. interruptus* is further distinguished from *B. mollis* by its being a biennial or sub-perennial growth, by its greater height, and narrow strict interrupted panicle. The fruit of *B. interruptus* is shorter and darker in colour, with a more conspicuous groove. In *B. hordeaceus* the palea is more or less adherent to the surface of the caryopsis, than which it is slightly narrower, so that a small margin of the fruit is to be seen. In *B. interruptus* the pale is only rarely adherent, and then not to the face but to the margins of the fruit. I can see no difference in the lodicules. The suggestion may be made that the split palea may be due to an accidental rupture during the growth of the fruit. That it is not due to this cause is evident from the fact that examination shows that the pales are split from its early flowering stage. Again, the split pale is always to be found in plants having the peculiar character of the panicle already described.

The history of the species is as follows: In 1883 I found what I thought was a peculiar variety of *B. hordeaceus* in considerable quantity in a barren chalky field in which a crop of barley had been grown the preceding year, but which was then lying fallow. The field is situated on the Lower Chalk formation between Unwell Wood and Blewburton Camp. In the adjoining fields, *Bromus hordeaceus*, var. *glabrescens* (Coss.), occurred more frequently than the ordinary form. Subsequently I found the same peculiar form in smaller quantity in a clover field on the same geological formation on the Oxfordshire side of the river between Goring and Gathampton.

An examination of our herbarium at Oxford and of botanical works having failed to yield anything like these specimens, I sent a supply to the *Botanical Exchange Club* in 1888, under the name of *B. mollis*, var. *aggregatus*. One of the Berkshire specimens so labelled was sent to Prof. Hackel, of St. Poelton, for his opinion. He quite agreed in considering it a new variety, and while offering to retain my suggested name, thought that the name *interruptus* would be more suitable, to which I willingly acceded. Prof. Hackel diagnosed it as follows: *B. mollis*, L., var. *interrupta*, Hackel. Panicula brevi, interrupta, spiculis glomeratis obovato ellipticis, gluma sterili superiore dimidium spiculum aequante vel superante. Affinis *B. mollis*, var. *conglomerata*, Pers. Syn. i. 96, cujus panicula aequalitur compacta, spiculae angustiores, villosiores.

For the last seven years I have kept the grass under observation. I find it comes true from seed, and that it is fairly persistent in its localities, when

the fact of its occurrence in corn crops is borne in mind. It is by no means confined to the two localities where I first found it, but it occurs over a considerable area of the Lower Chalk cornfields, and Messrs. Stanton and Tufnail have found it on the Upper Chalk in a sainfoin crop near Henley. In 1895 it was very common in a field on the Coralline Oolite near Elsfeld in Oxfordshire, where it was found by Mr. L. V. Lester.

The result of my investigation is that I find all the specimens of *B. hordeaceus*, and its varieties *glabrescens* and *Lloydianus*, have the upper pale entire. Some hundreds of specimens from France, Germany, Austria, Russia, Hungary, Turkey, Madeira, and Tasmania have been examined. I have also never found specimens of *B. commutatus* or *B. racemosus* with the upper pale split to the base. Fruits from specimens of *Bromus interruptus*, which had been cultivated before the character of the split glume had been made known, as well as seeds from my earlier gatherings of *B. interruptus*, all showed that the pale was split.

The question may be asked, is *B. interruptus* a native of Britain? This question I am unable to answer in the affirmative. We may urge in its favour that when it was sent to Prof. Hackel seven years ago it was a new form to him, nor since that time have I been able to see a continental specimen. From its occurring exclusively in arable ground, and chiefly in crops of Vetches, Clover, or Grass seeds, it may be claimed with some force that the designation Colonist would be more suitable than that of a Native. In the fields where I have seen it, I have, however, observed no plants of *Silene dichotoma*, *Crepis taraxacifolia*, or *C. nicaensis*, which are often present among continental Grass seeds. *B. commutatus* occurs with *B. interruptus* more frequently than *B. hordeaceus*, although I have seen *B. hordeaceus*, *B. interruptus*, *B. commutatus*, and *B. sterilis* in the same field. The suggestion of its being a starved form due to local peculiarities is not tenable. *B. interruptus*, cultivated by the side of *B. hordeaceus*, keeps quite distinct, and is not so much inclined to vary, either in height or condition of hairiness, as *B. hordeaceus*.

That the grass has not been recently introduced into Britain is proved by the fact that there is a specimen in the Watson Herbarium at Kew labelled *B. mollis*, var. *pseudo-velutinus*, and dated 1849.

The specimen from Odsey has the split palea and interrupted inflorescence of *B. interruptus*, which I have seen now from Berkshire, Oxfordshire, Buckinghamshire, West Kent, and Norfolk. Mr. F. Tufnail tells me he saw it rather plentifully near Lowestoft in Suffolk, and has seen specimens from Lincolnshire.

**B. ARVENSIS*, Linn. Sp. Pl. 77 (1753), and Herb. *Field Brome Grass*.

Serrafalcus arvensis, Parl. Fl. Ital. i. 393 (1848), and Godr. Fl. Lorr. ed. 1, iii. 185. Comp. Cyb. Br. 506. Syme, E. B. xi. 171, t. 1806. Nyman, 823. Fl. Oxf. 346. Colonist. Cornfields, waste places, and sides of railways. Local. A. June-September.

First found by the author, and recorded in the Bot. Exch. Club Report, 393, in 1892.

2. *Ock*. Abundant in a field between Ferry Hinksey and Hen Wood.

Abundant by the railway near Didcot. Near the Oxford Gas-works, but in both counties.

B. arvensis is recorded for the counties of Surrey, Hants, Wilts, and Oxford.

BRACHYPODIUM, Beauv. Agrost. 100 (1812).

B. gracile, Beauv. Agrost. 101. *Slender Wood Fescue*.

Bromus gracilis, Weigel, Obs. 15. *Triticum sylvaticum*, Parnell, Grasses Scot. 132, t. 61. *Brachypodium sylvaticum*, Roem. et Schult. Syst. ii.

- 741 (1817). *Festuca sylvatica*, Huds. Fl. Angl. 38, not of Villars. *B. sylvaticum*, Beauv. l. c. vide *Indice Kewensi*, but the reference has not been checked by me.
- Top. Bot. 501. Syme, E. B. xi. 173, t. 1807. Nyman, 842. Fl. Oxf. 352. Native. Septal. Shady places, hedge-banks, woods, rough pastures, chalk downs, &c. Its yellowish-green foliage is a conspicuous feature of the spring vegetation. Rather common and widely distributed. P. June-August.
- First record. Sunninghill, *Sir Joseph Banks, Herb. Brit. Mus.* 1773. Recorded as *Bromus sylvaticus*, Dr. Noehden, *Mavor's Agr. Berks*, 1809. Our common plant is the form with pubescent spikelets. Var. *GLABRESCENS* I have collected near Tubney and Frilsham. The plant of the open chalk downs may prove to be varietally distinct. *Brachypodium gracile* is found in all the bordering counties.
- B. pinnatum**, Beauv. Agrost. 101 (1812). *Spiked Fescue Grass*.
Festuca pinnata, Huds. Fl. Angl. ed. 2, 48 (1778). *Bromus pinnatus*, Linn. Sp. Pl. 78 (1753).
- Top. Bot. 501. Syme, E. B. xi. 175, t. 1808. Nyman, 842. Fl. Oxf. 353. Native. Pascual. Dry calcareous pastures, roadsides, &c. A species distinctly of limestone or chalky soil. Locally abundant, but absent from the areas of the Clays and Bagshot Sands. P. July-August.
- First record. *Gramen spica Brizae majus*, C. B. Pin. In Copses and Hedges, common enough about Oxford, Bobart in *Ray, Syn.* ed. 2, 248, 1696. See also *Hudson's Fl. Angl.* 41, 1762.
1. *Isis*. Cumnor. Appleton. Eaton Stibble. Dean Court. Pusey. Buckland. Buscot. Abundant in the upper part of Wytham Wood.
 2. *Ock*. Shadwell Copse. Between Cumnor Hurst and Childswell Farm, *Bart. Phaen. Bot.* 448. (Wrongly put in Oxfordshire.) Cothill, growing in the Bog. Frilford. Besilsleigh. Wootton. Marcham. Kingston Bagpuze. By the railway near Abingdon. Uffington. Common on the downs, in large patches which are very conspicuous amid the surrounding vegetation, and in the spring are of a very beautiful yellowish-green tint. Especially abundant about the White Horse Hill.
 3. *Pang*. Ilsley Downs, *W. M. Rogers*. Ashridge. Compton.
 4. *Kennet*. Catmore. West Ilsley Downs, *W. M. Rogers*. Near the Kennet's mouth, on railway, *Tufnail*. Near Lord Craven's House at Ashbury.
- Var. *GLABRESCENS*, Syme, l. c., is our commoner form; it occurs at Wootton, Besilsleigh, &c.
- Var. *PUBESCENS*, S. F. Gray, *Nat. Arr.* ii. 112, which has pubescent

spikelets, has been noted at Abingdon by the author in *Rep. of Bot. Exch. Club*, 1892, at Cumnor, Wytham, Tubney, &c.

Var. *CORNICULATUM* (*Bromus corniculatus*, Lam. Fl. Fr. iii. 608), with spikelets divaricate and recurved, occurs at Cumnor, &c.

A small slender form with shorter spikelets and rather longer awns is *Triticum pinnatum*, var. *gracile*, Parnell, Grasses Brit. 292, t. 133.

B. pinnatum is recorded from all the bordering counties.

LOLIUM, Linn. Gen. n. 90.

L. perenne, Linn. Sp. Pl. 83 (1753), and Herb. *Rye Grass*.

L. rubrum, Ger. Em. 78.

Top. Bot. 504. Syme, E. B. xi. 185, t. 1814. Nyman, 845. Fl. Oxf. 354. Native. Pascual. Pastures, roadsides, cultivated ground, &c. Abundant.

P. June-August.

First record. Frequently sown with clover. Comes early, not very nutritious as hay, *Mavor's Agr. Berks*, 1809. Var. γ [with compound spike] and var. δ [with short, broad, egg-shaped, close spike] of Sir J. E. Smith, are occasionally found about Oxford, *Baxt. Phaen.*

Bot. 116, 1835. *L. perenne* is a very variable grass.

Var. *TENUIS* (Linn. Sp. Pl. ed. 2, 122 (1762), and Herb. as a species), which Syme considers to be a starved state rather than a true variety, but which Baxter says is constant under cultivation and of annual duration, see *Phaen. Bot.* 116, has been noted at Faringdon, Wytham, Hinksey, Wantage, Marcham, Moulshurst, Tilehurst, Sulhampstead, Twyford, Sonning, Bray, Windsor, &c.

Var. *COMPRESSUM*, Sibth. Fl. Oxon. 50 (1794), is a monstrosity, in which the rachis is shortened with widely diverging spikelets, forming a flattened spike, and has occurred at Hinksey, Radley, Streatley, Windsor, &c.

Var. *COMPOSITUM*, Sm. Fl. Brit. i. 343, with a very compound spike, especially towards the base, has been noted at Didcot, Wytham, Abingdon, Bray, Newbury, &c.

At Wytham I gathered an anomalous form, in which the upper florets of each spikelet are represented by small secondary spikelets.

Var. *PURPURASCENS*, S. F. Gray, Nat. Arr. ii. 93, is only a form in which the inflorescence is of a reddish-brown colour, and which is rather frequent in dry sunny places.

L. perenne is a common plant in all the bordering counties.

***L. MULTIFLORUM**, Lam. Fl. Fr. iii. 621 (1778).

Comp. Cyb. Br. 597. Nyman, 844.

Alien. Agrestal. Cultivated fields. Not infrequent. A. or B. June-July. First record. Near Maidenhead, Mr. G. G. Mill, in *Phyt.* i. 995, 1843.

1. **Isis**. Near Wytham Mill.

2. **Ook**. Didcot. On waste ground near Grandpont. Near Upton.

3. **Pang**. Bucklebury. East Ilsley. Purley. Basildon.

4. Kennet. Theale. Newbury. Padworth. Enborne.
5. Loddon. In a field on the left side of the Maidenhead Road, about a mile from the town of Maidenhead; it grew in patches, about twice as tall as the *L. perenne* which surrounded it, *Mill.* Maidenhead. Twyford. Sonning.

Var. ITALICUM (A. Br. in Flora xvii. (1834) 259, as a species). *Italian Rye Grass.* *L. perenne*, var. *italicum*, Parnell, l. c. 298, t. 138. Syme, E. B. xi. 186, 1815. Fl. Oxf. 354.

Occurs as a planted crop in all the districts, and relies of its cultivation have been noticed at Hurst, *Melville*, Abingdon, Upton, Padworth, Maidenhead, Silchester, &c. Said to have been first introduced as a fodder grass in 1831; it is kept distinct from *L. multiflorum* by Willkomm and Lange in *Prod. Fl. Hisp.*, and is said to be perennial, not annual.

Var. COMPOSITUM, Mut. Fl. Fr. iv. 139. *L. compositum*, Thuill. Fl. Par. ed. 2, 62. Has been seen in seed crops near Newbury, at Basildon, &c.

***L. TEMULENTUM*, Linn. Sp. Pl. 83 (1753), and Herb. *Bearded Darnel.*

L. album, Ger. Em. 78.

Top. Bot. 504. Syme, E. B. xi. 187, t. 1816. Nyman, 844. Fl. Oxf. 344. Colonist. Agrestal. Cornfields and waste places. Very rare. A. June-Aug. First record. *Gramen loliaceum locustis brevibus*, near Windsor [? Surrey], Mr. Stonestreet in *Herb. Oxf.* about 1700.

2. Ock. Waste ground near Grandpont, and by the railway at Didcot. In a field near Kingston Bagpuze.

Var. ARVENSE (With. Bot. Arr. ed. 3, ii. 168, as a species), Syme, E. B. t. 1817.

5. Loddon. Near Windsor, *Mr. Stonestreet.*

As a casual plant it is recorded for Surrey, Hants, Wilts, and Oxfordshire.

AGROPYRON, J. Gaertn. in Nov. Comm. Petrop. xiv. i. (1770) 539.

A. caninum, Beauv. Agrost. 102, as *Agropyrum*.

Triticum caninum, Linn. Sp. Pl. 86 (1753), and Herb. *Elymus caninus*, Linn. Fl. Suec. 39.

Top. Bot. 501. Syme, E. B. xi. 176, t. 1809. Nyman, 841. Fl. Oxf. 353.

Native. Septal. Hedges, borders of woods, &c. Not very common, but occurs in scattered localities in all the districts. P. July.

First record. Sunninghill, *Sir Joseph Banks in Herb. Brit. Mus.* 1773.

Triticum caninum. Dog's Wheat, Dr. Noehden. Woods and hedges, *Mavor's Agr. Berks*, 1809.

1. Isis. Buscot Wood. Wytham Wood. Appleton.

2. Ock. Wootton, *Boswell*. Boar's Hill. South Hinksey. Cothill. Wittenham. Challow. Tubney. Didcot.

3. Pang. Marlstone. Fence Wood. Ashampstead. Ashridge. Bradfield. Tidmarsh.

4. Kennet. Mortimer, *Tufnail*. Padworth. Aldermaston. Theale. Sandleford. Inkpen.

5. Loddon. Bisham Wood, *Mill.* Sunninghill, *Sir J. Banks*. Twyford. Near Jouldern's Ford. Blackwater. Bisham. Waltham. Windsor.

A. caninum is found in all the bordering counties.

A. repens, Beauv. Agrost. 102 (1812), sub *Agropyrum*. *Twitch*, *Couch Grass*, *Quick Grass*.

Triticum repens, Linn. Sp. Pl. 86 (1753), and Herb.

Top. Bot. 502. Syme, E. B. xi. 178, t. 1810. Nyman, 841. Fl. Oxf. 352. Native. Agrestal. Cultivated fields, field-borders, hedges, &c.

Abundant, especially in badly farmed arable ground. P. June-August.

First record. *Triticum repens*, Squitch Grass. One of the most common and troublesome weeds in neglected arable lands, and which can only be effectually destroyed by fallowing in a dry summer, *Mavor's Agr. Berks*, 1809.

Although found commonly in the cultivated areas in all the districts, it is not common in bare chalky fields, and it is absent from considerable areas of heathland and from the grassy chalk downs.

A. repens is a variable species. It is found with the awn nearly obsolete or considerably developed, and the leaves vary considerably in colour from green to glaucous, and from two inches to a foot long. A considerable number of varieties have been described. We have in Berkshire

Var. **ARVENSE**, Schrank, Reichb. Ic. Fl. Germ. et Helv. i. f. 237 [257], which is an awnless form with mucronate pales, which is common in cornfields and by field-borders in most parishes in the county; it is probably identical with the var. *genuinum* (sub *Triticum*) of Duval-Jouve, and Syme. The var. *obtusum* of Syme scarcely differs; it has obtuse pales with a minute apiculus.

Var. **DUMETORUM**, S. F. Gray, Nat. Arr. ii. 97. *T. dumetorum*, Schreb. in Fl. Erlang. i. 143, is a robust form which occurs in hedges and thickets, as at Sunningdale, Blewbury, Hagborne, Kingston Bagpuze, &c. Given in Reichb. Ic. Fl. Germ. et Helv. i. f. 259.

Var. **LEERSIANUM**, S. F. Gray, l. c. = *T. Leersianum*, Roem. et Schultes, Syst. ii. 755, has both glumes and pales attenuated into a long awn. It occurs in hedgerows, as at Shrivenham, Tilehurst, Hungerford, Waltham, &c. Given in Reichb. l. c. f. 261.

Var. **VAILLANTIANUM**, Schrank in Reichb. Ic. Fl. Germ. et Helv. i. f. 260 = *Triticum repens*, var. *aristatum*, Parnell, is similar to the preceding, but the awns are shorter; it is a not uncommon form, as at Cumnor, Kennington, Appleton, Radley, Blewbury, Moulsoford, Padworth, Swallowfield, Ruscombe, &c. Probably the *Triticum repens*, var. *barbatum* of Duval-Jouve, would include the last two forms.

Glaucous forms (*forma glauca*) of the awned and of the awnless variety occur. I have seen such at Ferry Hinksey, Marcham, Kingston Bagpuze, and at Moulsoford.

The creeping root of this plant forms a great proportion of the so-

called twitch grass which is so great a pest in arable fields. The point of the growing root is covered with hard scales. I have seen the living conical root of a *Rumex* pierced through by a root of *A. repens*.

A. repens is abundant in all the bordering counties.

NARDUS, Linn. Gen. n. 65.

N. stricta, Linn. Sp. Pl. 53 (1753), and Herb. *Mat Grass*.

Gramen sparteum juncifolium, C. B. Pin. 5.

Top. Bot. 507. Syme, E. B. xi. 197, t. 1824. Nyman, 846. Fl. Oxf. 355. Native. Ericetal. Heaths. Rare in the north of the county, but common on the heathy tract of the south-west. P. May-August.

First record. *Gramen Sparteum minimum Anglicum*, P. 1199. On the next place betwixt Windsor Forest and Redding, where they dig Furz, Merrett's *Pinax*, 58, 1666. The description and figure in Parkinson's *Theatrum* leave no doubt that this is the plant referred to by Merrett.

2. Ock. Cumnor Hurst, Baxter in Walk. Fl. 1834. Now almost extinct.

3. Pang. Cold Ash Common, Mr. Bicheno in Mavor's *Agr. Berks*, 1809. Oare Common. Curridge.

4. Kennet. Mortimer, *Tufnail*. Snelsmore Common. Aldermaston. Burghfield. Greenham Common. Inkpen. Newbury Wash. Crookham Heath. Hampstead Marsh. Wickham. Rather common in this district.

5. Loddon. Between Windsor Forest and Reading, Merrett. Near Eton, *Gotobed* in Mavor's *Agr. Berks*. Ascot. Sunninghill. Sunningdale. Bagshot Heath. Easthampstead. Crowthorn. Wellington College. Finchampstead. Ambarrow. Risely. Near Jouldern's Ford. Long Moor. Bearwood. Early. Wokingham. Bracknell. Windsor Great Park.

Nardus stricta is recorded for all the bordering counties except E. Gloucestershire, but it is very rare in Oxfordshire.

HORDEUM, Linn. Gen. n. 93 (Tournefort, Inst. t. 295).

H. nodosum, Linn. Sp. Pl. ed. 2, 126 (1762), and of Herb. teste Munro. *Meadow Barley*.

H. secalinum, Schreber, Spic. Fl. Lips. 148 (1771). *H. murinum*, var. *b*, Linn. Sp. Pl. 85 (1753). *H. pratense*, Huds. Fl. Angl. ed. 2, 56 (1778).

Top. Bot. 505. Syme, E. B. xi. 193, t. 1821. Nyman, 838. Fl. Oxf. 352. Native. Pratal. In rich alluvial meadows and pastures. Locally abundant. P. June-July.

First record. *H. pratense*. Produces a considerable quantity of hay,

but is inferior to many other grasses, *Mavor's Agr. Berks*, 1809. Occurs in all the districts.

1. **Isis.** Cumnor. Coleshill. Buscot. Godstow. Wytham Park. Appleton.
2. **Ock.** Denchworth, *Wait*. Marcham. Radley. Hanney. Challow.
3. **Pang.** Basildon. Tilehurst.
4. **Kennet.** Thames Meadows near Reading, *F. Tufnail*. Theale. Aldermaston.
5. **Loddon.** Sonning. Bray. Side of Thames near Park Place.

H. nodosum occurs in all the bordering counties.

H. murinum, Linn. Sp. Pl. 85 (1753), and Herb., and of J. Bauhin. *Wall Barley*.

Top. Bot. 506. Syme, E. B. xi. 194, t. 1822. Nyman, 838. Fl. Oxf. 352. Native. Viatical. Waste places, roadsides, walls, &c., especially in and about villages. Common and widely distributed. B. June–November.

First record. Under the mud walls about Blewbury and in many other places about Blewbury, and in many other places in the Vale, *Mr. J. Lousley in Russell's Cat*. 1839.

H. murinum occurs in all the bordering counties.

ELYMUS, Linn. Gen. n. 91.

E. europaeus, Linn. Mant. i. 35 (1767), and Herb. *Wood Lyme Grass*.

Secale villosum, Huds. Fl. Angl. 46 (1762). *Elymus villosus*.

Hordeum sylvaticum, Huds. Fl. Angl. ed. 2, 57 (1778). *H. europaeum*, All. Fl. Ped. ii. 60 (1788). *H. cylindricum*, Murray, Prod. Stirp. Gott. 43 (1770).

Top. Bot. 505. Syme, E. B. xi. 192, t. 1820. Nyman, 837. Fl. Oxf. 496. Native. Sylvestral. Woods on the Chalk. Local. Distinctly a calcareous species. P. July–August.

First record. Circa Henley and Marlow, *Hudson's Fl. Angl.* 57, 1778. Berkshire, *Sm. Fl. Brit.* i. 154, 1800, and *E. europaeus*, Mr. Bicheno in *Mavor's Agr. Berks*, 1809. Not rare in Berkshire, *Sm. Engl. Fl.* i. 178, 1824.

3. **Pang.** Near Reading, *Boswell*. Unwell Wood. Basildon. Sulham.
5. **Loddon.** Woods between Maidenhead and Great Marlow (*J. Woods*), *Winch add. in New Bot. Guide*, 1835. Circa Henley and Marlow, *Huds. Fl. Angl.* 1778. Abundantly in Bisham Wood and in most of the woods, *Mill*. Quarry Wood.

Elymus is recorded for all the bordering counties except Wiltshire.

****TRITICUM VULGARE**, Vill. Hist. Pl. Dauph. ii. 153. *Wheat*.

Casual plants of this are found occasionally in hedges, &c., but it is not permanent.

****SECALE CEREALE**, Linn. Sp. Pl. 84 (1753), and Herb. *Rye*.

Occurs as a casual on rubbish-heaps and waysides, as at Grandpont, Abingdon, Didcot, Maidenhead, and Windsor, but does not become established.

****HORDEUM DISTICHON**, Linn. Sp. Pl. 85 (1753). *Barley*.

Is found by field borders, &c., as a casual plant, but it does not establish itself.

****H. HEXASTICHON**, Linn. Sp. Pl. 85 (1753).

Has been noticed as a casual plant by the river near Folly Bridge, by Mr. F. T. Richards, and at Moulsoford and Theale, &c.

****SORGHUM VULGARE**, Pers. Syn. i. 101 (1805).

Casual. Field near Theale.

I am indebted to Messrs. Sutton & Sons, of Reading, for repeated kindnesses, and I may take this opportunity of drawing attention to their Grass Garden, which was laid out by Mr. Martin Sutton some thirty years ago, and which represents fifty-two genera, now arranged according to Bentham and Hooker's *Genera Plantarum* consisting of 170 species and varieties of grasses, 100 being native of the British Isles, forty-one Continental, eighteen species from North America, and the remainder natives of India and the Colonies.

Each species occupies a plot some nine feet by six feet, and the garden is so arranged that the merits of different agricultural grasses may be readily compared, while admitting of the study of the prominent characters of the inferior and worthless kinds.

There are five species of *Phleum* under observation, seven kinds of *Agrostis*, six species of *Avena*, thirteen species and varieties of the genus *Poa*. The number of *Fescues* in the garden is twenty-four. The genus *Bromus* is represented by twenty species. The different genera of *Lolium*, *Hordeum*, and *Elymus* are also well shown.

The 'one grass' plots, of which there are forty, were laid down each with a single variety of grass, and accurate notes have been made on the relative yield of the various agricultural grasses, duration of each species, period of starting into growth in the spring and lateness of autumn growth, the variation in time of flowering, and the effect on each variety of early or late cutting.

ACOTYLEDONES, Jussieu, Gen. I (1789).

PTERIDOPHYTA, Cohn in Hedwigia, xi. (1871) 18.

FILICES, Linn. Gen. p. 484.

PTERIS, Linn. Gen. n. 1038.

P. aquilina, Linn. Sp. Pl. 1075 (1753). *Bracken Fern*.

Filix foemina, Gerard, 969. *Eupleris aquilina*, Newman in Phyt. ii. (1845) 278. *Pteridium aquilinum*, Kuhn. in Luerss. Farnpf. 104, and Asch. Syn. 82.

Top. Bot. 520. Syme, E. B. xii. 145, t. 1886. Nyman, 861. Fl. Oxf. 357. Native. Ericetal, &c. Bushy places, heaths, open woods, parks on sandy soil. Abundant on sandy soil throughout the county. Absent from chalky, stiff clayey, and calcareous soil. P. July-August.

First localized record. Common in all the sandy and poor woods and pastures, plentiful in Eling Common and in Beech Wood, *Mr. J. Lousley in Russell's Cat.* 1839. Reading is supposed by some to take its name from the great quantity of Fern growing thereabouts, *Lyson's Magna Britannica*, 1720. Farnborough and Fernham are also probably derived from Fern.

The *Pteris* is too frequent to need a detailed list of localities.

1. *Isis*. Plentiful in Wytham Woods. Absent from the Oxford Clay.
2. *Ock*. On Boar's Hill and Bagley Wood. Plentiful about Tubney and Frilford and near Faringdon. Absent from the greater part of the Vale of Berkshire.
3. *Pang*. Plentiful on the commons and heaths of the district, absent from the bare chalk.
4. *Kenet*. Particularly abundant on the heathy portion of the Bagshot Sands and on the Brick earth, &c., as Snelsmore, Wickham, Aldermaston, Mortimer, Burghfield, Lukpen, Greenham, &c.
5. *Loddon*. Abundant about Bearwood, Wokingham, Sandhurst, and generally on the Bagshot Sands. Plentiful in Windsor Park, on Stubbing's Heath and Cookham Dean.

In dry poor soil, as at Snelsmore, &c., the secondary pinnules instead of being deeply pinnatifid are sometimes nearly entire; this is the var. *INTEGERRIMA*, Moore, *Nat. Pr. Brit. Ferns*, ii. 242. Seedling plants are occasionally found in brickwork near streams; in these the fronds are much thinner in texture.

Pteris is found in all the bordering counties.

BLECHNUM, Linn. Gen. ed. 5, 485 (1754).

Lomaria, Willd. in Berl. Mag. iii. (1800) 160.

- B. Spicant**, With. Bot. Arr. ed. 3, iii. 765 (1796), Roth, Cat. fasc. i. 132 (1797). *B. boreale*, Swartz in Schrad. Journ. ii. (1800) 75. *Osmunda Spicant*, Linn. Sp. Pl. 1066 (1753). *Lonchitis aspera*, Gerard, 978. *L. Spicant*, Desv. in Berl. Mag. Ges. Nat. Freunde, v. (1811) 325.

Top. Bot: 520. Syme, E. B. xii. 143, t. 1885. Nyman, 862. Fl. Oxf. 357. Native. Ericetal. Woods and heaths, especially on the ditch-sides in the more shady heaths of the south-western part of the county, where it is not uncommon and widely distributed. It appears to dislike calcareous soils. P. July–August.

First record. *Lonchitis*. It grows in Chilsey woods by the side of a hill where springs fall, *MS. in Lyte's Herball*, 1660.

1. *Isis*. Wytham, very rare.
2. *Ock*. Childswell Hill, *MS. in Lyte*. Bagley Wood, *Bart. Stirpes. Crypt. Ox. No. 2*, 1825. Near Tubney, *Walker*. Shadwell Copse. Rare in this district.

3. **Pang.** Grimsbury Castle. Cold Ash Common. Fence Woods.
Rare in this district.
4. **Kennet.** Mortimer, *Tufnail*. Greenham Common. Burghfield.
Aldermaston. Ufton. Padworth. Snelsmore. Wickham.
5. **Loddon.** Woods between Wokingham and Wellington, *Crawley*.
Ambarrow. Sandhurst. Wellington College. Finchampstead.
Swinley. Bracknell. Bagshot. Owls Moor. Ascot. Long
Moor. Bear Wood. Easthampstead.

Blechnum Spicant is recorded from all the bordering counties.

ASPLENIUM, Linn. Gen. n. 1042 (*Trichomanes*, Tourn. Inst. t. 315a, b).
Asplenium, Asch. Syn. 53 (1896).

[**A. LANCEOLATUM**, Huds. Fl. Angl. ed. 2, 454 (1778). Syme, E. B. xii. 119, t. 1873.
Was recorded, probably in error, from Oxfordshire by Bobart in 1699.]

A. Adiantum-nigrum, Linn. Sp. Pl. 1081 (1753). *Black Splenewort*.

Adiantum-nigrum officinarum, J. Bauhin, Hist. iii. 734. *Onopteris mas*,
Gerard, 975.

Top. Bot. 519. Syme, E. B. xii. 121, t. 1874. Nyman, 863. Fl. Oxf. 359.
Native. Rupestral. Walls and dry banks. Very rare. P. June-
September.

First recorded by Mr. C. S. Bird in 1833 and given, but without
locality, by Mr. T. B. Flower in *Robertson's Env. of Reading*, 1843.

1. **Isis.** Wytham, very rare.

4. **Kennet.** Burghfield, *Bird*, 1833. Cottage Farm, Sulhampstead,
Tufnail. Aldermaston. Near Inkpen, in hedge-banks.

5. **Loddon.** Near Finchampstead, one plant, *E. Willett in Well. Coll.*
List. On the walls of Shottesbrooke Church.

A. Adiantum-nigrum is recorded for all the bordering counties.

A. Trichomanes, Linn. Sp. Pl. 1080 (1753), p. p. *Maidenhair Splen-*
wort.

Trichomanes mas, Gerard, 985.

Top. Bot. 518. Syme, E. B. xi. 131, t. 1878. Nyman, 862. Fl. Oxf. 358.
Native. Sylvestral. Old walls, hedges, &c. Very rare. P. May-
September.

First recorded by Mr. C. S. Bird in 1833, and by Mr. H. Boswell in *Britt.*
Contr. 1871.

1. **Isis.** Wytham Park.

2. **Ock.** Pusey, *Boswell*. Sunningwell, *Mrs. Squire*. Marcham, *Walker*.

3. **Pang.** Englefield Park, on old wall, *Tufnail*.

4. **Kennet.** Burghfield, *Bird*. On a bridge at Shaw Avenue near
Shaw House. *Jackson*. Theale churchyard wall. Near Cottage
Farm, Sulhampstead, *Tufnail*.

5. **Loddon.** Included in the *Wellington Coll. List*, but the Rev. C. W.

Penny doubts its occurrence in the Berkshire portion of this district.

A. Trichomanes is recorded for all the bordering counties.

A. *Ruta-muraria*, Linn. Sp. Pl. 1081 (1753). *Wall Rue*, *White Maidenhair*.

Ruta muraria, Gerard, 983.

Top. Bot. 519. Syme, E. B. xii. 135, t. 1880. Nyman, 864. Fl. Oxf. 358. Rupestral. Walls, locally common, but absent from considerable areas of the county. P. May-September.

First record. *Adiantum album*, Lonic. Cam. Tab. *Ruta Muraria*, Ger. Wall Rue. Tent woort. On the walls of the King's Walkes at Windsor, [How's] *Phyt. Brit.* 2, 1650. See also Merrett's *Pinax*, 1666.

1. **Isis.** Wytham Park. Buscot. Buckland. Dean Court.
2. **Ock.** Pusey, *Boswell*. Marcham, *Walker*. Sandford. Abingdon.
3. **Pang.** Streatley, *Pamplin*. Tidmarsh. Pangbourn.
4. **Kennet.** Donnington. Kintbury. Southcote. Benham.
5. **Loddon.** On the walls of the King's Walkes at Windsor, *Phyt. Brit.* (Still there.) Sonning Bridge, with an attenuated form or var. *pseudo-germanicum*, Milde? *Tufnail*. Shottesbrooke. Cookham. Hurst. Wargrave. Ruscombe. Bisham.

A. Ruta-muraria is recorded from all the bordering counties.

ATHYRIUM, Roth, Tent. Fl. Germ. iii. 58 (1800).

A. *Filix-foemina*, Roth, iii. 65. *Lady Fern*.

Filix-foemina, Fuchs, not of Gerard. *Polypodium Filix-foemina*, Linn. Sp. Pl. 1090 (1753). *P. Rhaeticum*, Linn. l.c., and *Herb.*, teste Sir J. E. Smith. *Aspidium Filix-foemina*, Swartz in Schrad. Journ. ii. (1800) 41. *Asplenium Filix-foemina*, Bernh. in Schrad. Journ. i. (1806) 26.

Top. Bot. 517. Syme, E. B. xii. 108, t. 1869. Nyman, 864. Fl. Oxf. 359. Native. Sylvestral. Woods, especially on damp peaty soil. A variable species. Locally frequent, but absent from considerable areas of the county. P. June-August.

First record. Bagley Wood, *Mr. Baxter*, MSS., about 1820.

1. **Isis.** Appleton Common, *Miss F. M. Parker*. Wytham Woods. Cumnor. Buscot.
2. **Ock.** Bagley Wood, *Baxter*. Powder Hill Copse, *Boswell*. Marcham, *Walker*. Wittenham. Tubney. Cothill.
3. **Pang.** Bucklebury, *Tufnail*. Cold Ash Common. Fence Woods. Unwell Wood. Pangbourn. Ashampstead. Ashridge.
4. **Kennet.** Upton. Padworth. Aldermaston. Burghfield. Mortimer. Silchester. Brimpton. Wasing. Inkpen. Greenham.
5. **Loddon.** Included in the *Wellington Coll. List*. Finchampstead. Risely. Sandhurst. Blackwater. Easthampstead. Crowthorn.

Long Moor. Wokingham. Bearwood. Very fine near Jouldern's Ford. Bagshot. Bracknell. Sunninghill. Windsor Great Park. Binfield. Hurst. Bear Wood. Stubbing's Heath. Ashley Hill. Bowsey Hill. Bisham.

A. Filix-foemina is a very variable fern. Among the forms are—

Var. *CONVEXUM* (Newman, p. p. in Phyt. (1851) App. xiii. as a species), which has been noticed near Wickham, on Greenham, Aldermaston, Mortimer, and Burghfield Heaths, at Sandhurst, Easthampstead, Finchampstead, Owls Moor, and near Ascot. It is found in dry open places.

Var. *MOLLE* (Roth, Tent. Fl. Germ. iii. 61, as a species) = var. *fissidens*, Asch. Syn. 12, with small fronds of a more delicate texture, which I have seen in damp shady woods, as at Wytham, Fence Wood, Ufton, Aldermaston, Padworth, Sandhurst, Windsor Park, &c.

A very large number of so-called varieties are described, and many of them figured in Lowe's *Our Native Ferns*, vol. ii. 63-140 (1865). Of these the var. *irregulare*, Moore; the var. *pannosum*, Moore; the var. *pruinatum*, Moore; the var. *ovatum*, Roth; and the var. *odontomanes*, Moore, are recorded from Virginia Water.

Athyrium Filix-foemina is found in all the bordering counties.

CETERACH, Adans. Fam. ii. 20 (1763).

C. officinarum, Willd. Sp. Pl. v. 136 (1810), and of C. B. Pin.

C. Ceterach, Karst. *Asplenium Ceterach*, Linn. Sp. Pl. 1080 (1753), and Asch. Syn. 54. *Asplenium sive Ceterach*, Gerard, 978.

Top. Bot. 508. Syme, E. B. xii. 139, t. 1883. Nyman, 868. Fl. Oxf. 363. Native. Rupestral. Old walls. Very local. P. April-October.

First record. 'Berkshire,' in Lowe's *Our Native Ferns*, ii. 372, 1865, definitely recorded by the author in *Rep. of Bot. Rec. Club for 1881*.

1. **Isis.** Buckland, *Boswell*. Wytham Abbey, abundant. Buscot.

2. **Ock.** In the brickwork of the Abingdon Canal, 1881. On walls in Marcham. Kingston Bagpuze. Culham Bridge.

Asplenium sive Ceterach, on Beckonsfield Church in Berkshire, *Park. Theatr.* 1050 (1640); but Beaconsfield is in Buckinghamshire.

Ceterach is recorded for all the bordering counties.

SCOLOPENDRIUM, Adans. Fam. ii. 20 (1763), Sm. in Act.

Taur. v. 410 (1791), teste Pfeiffer,

S. vulgare, Symons, Syn. 193 (1798). *Hart's-tongue Fern*.

S. Scolopendrium, Karst. *Deutsche Fl.* 278 (1880-3). *S. officinarum*, Swartz, in Schrad. Journ. ii. (1800) 61. *Asplenium Scolopendrium*, Linn. Sp. Pl. 1079 (1753). *Phyllitis*, Gerard, 976.

Top. Bot. 520. Syme, E. B. xii. 141, t. 1884. Nyman, 862. Fl. Oxf. 357.

Native. Sylvestral, &c. Woods, hedge-banks, old quarries, and brick-work of village wells. Rare. P. July–September.

First record. A rare plant on the sides of some of the wells, *Mr. J. Lousley in Russell's Cat.* 1839.

1. *Isis*. Shrevenham. Ferry Hinksey. Wytham.
2. *Ock*. Marcham, *Walker*. At Blewbury, Hagborne, *Lousley*. Planted at Lockinge. Near Wantage.
3. *Pang*. At Langley. Great House, Hampstead Norris, *Lousley*.
4. *Kenet*. Aldermaston. ('Marygreen, in the village well,' *Thos. Hardy*; evidently *Fawley* is meant.)
5. *Loddon*. Royal Military College Grounds, *A. Grey in Wellington Coll. List*. Long Moor. Windsor Park.

Scolopendrium is recorded for all the bordering counties.

[*CYSTOPTERIS FRAGILIS*, Bernh. in *Schrad. Journ.* i. (1806) 26. *Brittle Bladder Fern*.

Polypodium fragile, Linn. Sp. Pl. 1091 (1753).

Syme, E. B. xii. 108, t. 1864. Is recorded for Oxfordshire and Surrey, but with some doubts as to its being native there. It is a native of Gloucestershire.]

POLYSTICHUM, Roth, Tent. Fl. Germ. iii. 79 (1800).

P. aculeatum, Roth, l. c. *Prickly Shield Fern*.

Aspidium aculeatum, Willd. Sp. Pl. v. 258. *Polypodium aculeatum*, Linn. Sp. Pl. 1090 (1753).

Top. Bot. 513. Syme, E. B. xii. 93, t. 1860. Nyman, 865. Fl. Oxf. 360. Native. Septal. Woods and shady hedge-banks. Local and rather rare. P. July–August.

First recorded, but without a locality, by Mr. T. B. Flower in *Robertson's Env. of Reading*, 1843.

3. *Pang*. Near Basildon.
 4. *Kenet*. Burghfield. Inkpen. Near Aldermaston. Near West Woodhay.
 5. *Loddon*. Near Whistley Mill. Near Thatcher's Ford.
- Var. *LOBATUM* (*Polypodium lobatum*, Huds. Fl. Angl. 459. *Aspidium lobatum*, Swartz, in *Schrad. Journ.* ii. (1800) 37).
4. *Kenet*. Near Inkpen. Near West Woodhay.
 5. *Loddon*. Included in the *Wellington College List*. Finchampstead.

The following letter accompanied specimens sent by Mr. Reeks to the Linnean Society:—

'North End, East Woodhay, Mar. 14, 1871. I have sent for exhibition a small series of the common *Aspidium*, from that of simple *Lonchitis* form to that of the more highly developed *subtripinnatum*. With the exception of one or two specimens at the end of the series, which are more intimately connected with the form called *angulare*, all the fronds are fully fructified, at any rate sufficiently so to reproduce their respective forms from seed. I have commenced the series with the lowest, or least perfectly developed forms of *aculeatum*, and traced them up to that having perfectly stalked pinnules,

a form not generally described by British botanists, unless it be included under the term *angulare*, from which it can scarcely be distinguished, except by its rigid growth and leathery texture. . . . The whole of the forms, with hundreds of others intermediate, grow in almost every lane of the parish. . . . My experience here (and I have rarely met with any locality more favourable for the study of our common *Aspidia*) is, that it is very unusual to meet with what may be termed a luxuriant specimen of *angulare* which has not at least the first upper pinnule more or less subdivided, although this is not mentioned in the *Student's Flora*, except under *aculeatum*, which, Dr. Hooker says (evidently alluding to *A. angulare*), is "2-3 pinnate"; this latter is never the case with *aculeatum*, which, in its most highly developed state, i.e. with stalked pinnules, has only the inner and, sometimes, the outer edge of its first upper pinnule spinulose-serrate. *H. Reeks, F.L.S.* See *Linn. Soc. Journ.* xiii. (1871) 65.

In the *Oxfordshire Flora* I kept *lobatum* as a distinct species from *aculeatum*, but have now followed Syme in treating one as a variety of the other; it is, perhaps, an open question whether *angulare* should not also be merged with it.

If the original trivial name were adhered to, it would appear that the name *P. aculeatum*, Roth, should be given as the type (*lobatum*) and a new varietal name be given to Syme's *aculeatum*.

P. aculeatum is found in all the bordering counties.

P. angulare, Presl, Tent. Pterid. 83 (1836).

Aspidium angulare, Kit. in Willd. Sp. Pl. v. 257 (1810). *Polypodium aculeatum*, Huds. Fl. Angl. 459. *Aspidium aculeatum*, Swartz in Schrad. Journ. ii. (1800) 37.

Top. Bot. 514. Syme, E. B. xii. 95, t. 1861. Nyman, 865. Fl. Oxf. 360. Native. Septal. Dry woods, shady hedge-banks. Very local. P. July-August.

First record. Newbury, Prof. J. Bobart in Herb. Du Bois at Oxford, 1690.

Mr. Reeks exhibited a series of forms collected at E. Woodhay in Hampshire which he thought showed a connexion with *P. aculeatum*; see Journ. Linn. Soc. 65, 1871.

2. Ock. Powder Hill Copse, Boswell in Fl. Oxf.

4. Kennet. Near Newbury, Bobart. Aldermaston. Inkpen.

P. angulare is recorded for all the bordering counties.

DRYOPTERIS, Adans. Fam. Pl. ii. 20 (1763).

Lastrea, Presl, Pterid. 73 (1836). *Nephrodium*, Rich. in Michx. Fl. Bor. Amer. ii. 266 (1803).

D. Thelypteris, Asa Gray, Man. Bot. U. S. 630 (1848). Marsh Fern.

Lastrea Thelypteris, Presl, Tent. Pterid. 76 (1836). *Acrostichum Thelypteris*, Linn. Sp. Pl. 1071 (1753). *Aspidium Thelypteris*, Swartz in Schrad. Journ. ii. (1800) 40.

Top. Bot. 515. Syme, E. B. xii. 52, t. 1848. Nyman, 866. Fl. Oxf. 362. Native. Uliginal. Marshes. Extremely rare. P.

First record. *Filix non ramosa minor sylvatica repens*, nobis. *Dryopteris*, Penae et Lobel. In locis paludosis, praesertim sylvaticis, ad

pedes montium, solo putrido v.g. in sylva Murley dicta, duos lapides ab Oxonio dissita, (*Bobart*) *Morison, Hist. Ox.* iii. 580, 1699.

1. *Isis*. Merley Wood (as above), *Bobart*.

5. *Loddon*. Windsor Park. Sunninghill Wells, *Lond. Fl.* 293. Near Loddon Bridge, *Rev. Dr. Lang*, 1889, but I have not seen specimens.

In the Bobart Herbarium at Oxford specimens of *Dryopteris Thelypteris* and *D. montana* (*Lastrea Oreopteris*) are mixed, so that Bobart may have intended the latter plant, which I have seen at Wytham; possibly he may have found both species, but I have not been able to find *Thelypteris* there or near Loddon Bridge.

D. Thelypteris is recorded only for Surrey and Hampshire of the bordering counties.

D. montana, Kuntze, *Rev. Gen. Pl.* ii. 813 (1891). *Mountain Shield Fern*.

Lastrea Oreopteris, Presl, *Tent. Pterid.* 76. *Polypodium montanum*, Vogler, *Diss. Giessae*, 1781, not of Lamarek. *Aspidium Oreopteris*, Swartz in *Schrad. Journ.* ii. (1803) 279. *Nephrodium Oreopteris*, Desv. in *Ann. Linn. de Paris*, vi. 257. *Aspidium montanum*, Asch. *Fl. Brand.* iii. 133 (1859). *Polypodium Thelypteris*, Huds. *Fl. Angl.* 457 (1778).

Top. Bot. 515. Syme, *E. B.* xii. 54, t. 1849. Nyman, 866. *Fl. Oxf.* 361. Native. Ericetal. Heathy places and woods. Local, but almost absent from the northern part of the county. P. July–August.

First record. Snelsmore Common, *Herb. Bicheno*, 1815. Existed a year or two ago with *Lastrea spinulosa* in Bagley Wood, and in woods near Cumnor and Wytham along with *L. Filix-mas* and *L. dilatata*, but collectors and cultivation have together nearly extirpated them, Mr. Boswell in *Britt. Contr.* 1871.

1. *Isis*. Wytham, *Boswell*.

2. *Ock*. Bagley Wood. Powder Hill Copse, *Boswell*, 1867.

4. *Kennet*. Snelsmore, *Bicheno*. Ufton Woods. Aldermaston. Mortimer. Burghfield.

5. *Loddon*. Bulmarsh, *Tufnail*. Near Sandhurst. Wellington College. Easthampstead. Finchampstead. Near Bracknell. Long Moor. Bagshot.

D. montana is recorded for all the bordering counties except East Gloucestershire, but it is to be feared is extinct in Oxfordshire.

D. Filix-mas, Schott *Gen. Fil.* sub tab. 9, (1836). *Male Fern*.

Lastrea Filix-mas, Presl, *Tent. Pterid.* 76. *Aspidium Filix-mas*, Swartz in *Schrad. Journ.* ii. (1800) 38. *Polypodium Filix-mas*, Linn. *Sp. Pl.* 1090. *Filix-mas vulgare*, Park. *Nephrodium Filix-mas*, Richard, *Cat. Med. Paris* (1801) 129.

Top. Bot. 515. Syme, *E. B.* xii. 57, t. 1850. Nyman, 863. *Fl. Oxf.* 360. Native. Sylvestral. Woods, copses, hedges, and shady places.

Generally distributed. P. June–July.

First record. Snelsmore, *Herb. Bicheno*, 1815. Bagley Wood, *Bart Stimp. Crypt. Ox.* 1825. Given by Mr. T. B. Flower in *Robertson's Env. of Reading*, 1843.

The Male fern is a variable species, but examples of these variations are not so frequent in our county as in some others. Our chief varieties are the following :—

Var. *AFFINIS*, Newm. *Hist. Brit. Ferns*, 187. *Aspidium affine*, Fischer & Meyer in Hohenack. *Enum. Pl. prov. Taluesch. leg.* (1838) 10.

1. *Isis*. Wytham. 2. *Ock*. Bagley Wood. 3. *Pang*. Bucklebury. Cold Ash Common. Hermitage. Fence Wood. 4. *Kennet*. West Woodhay, *Reeks*. Greenham Common. Snelsmore. Inkpen. Aldermaston. Mortimer. Burghfield. 5. *Loddon*. Easthampstead. Windsor Park. Sandhurst. Near Blackwater. Bracknell. Barkham. Coleman's Moor.

Var. *PALEACEA* (Don, *Fl. Nepaul. Prod.* 4 (1825), as *Aspidium*. *Dryopteris Filix-mas*, var. *Borreri*, Newm. l. c. 189.

1. *Isis*. Wytham. Pusey. 2. *Ock*. Powder Hill Copse, *Boswell*. Bagley. Frilford. Wittenham. 3. *Pang*. Basildon. Bucklebury. Tilehurst. Hermitage. Fence Woods. 4. *Kennet*. West Woodhay, *Reeks*. Mortimer, *Tufnail*. Snelsmore. Wickham. Inkpen. Greenham. Crookham. Aldermaston. 5. *Loddon*. Sandhurst. Windsor Park. Finchampstead.

D. Filix-mas is found in all the bordering counties.

D. spinulosa, Kuntze, *Rev. Gen. Pl.* 813 (1891).

- D. intermedia*, Asa Gray, *Man. Bot. U. S.* 630, teste Rabenhorst. *L. spinulosa*, Presl, *Tent. Pterid.* 76. *Aspidium spinulosum*, Sm. *Fl. Brit.* iii. 1124 (1804), and *E. B. t.* 1460. *Nephrodium spinulosum*, Strempel, *Syn. Fl. Berol.* 3♂ (1824). *Polypodium spinulosum*, Mueller, *Fl. Dan.* xii. t. 707 (1777).

Top. Bot. 516. Syme, *E. B. xii.* 76, t. 1855. Nyman, 866. *Fl. Ox.* 361.

Native. Sylvestral. Damp thickets, woods, and heaths. Local. P. June–August.

First recorded by Mr. H. Boswell in *Britt. Contr.* 1871.

1. *Isis*. Wytham Woods.
2. *Ock*. Bagley. Powder Hill Copse, *Boswell*. Hen Wood. Cothill. Frilford. Tubney.
3. *Pang*. Between Tidmarsh and Englefield, *Tufnail*. Hawkrige. Oare Wood. Fence Wood.
4. *Kennet*. Upton, *Tufnail*. Aldermaston. Mortimer. Burghfield. Padworth. Greenham. Sandleford.
5. *Loddon*. Blackwater. Finchampstead. Sandhurst. Wellington College. Long Moor. Bagshot. Sunninghill. Windsor Park. Near Loddon Bridge.

Var. *ELEVATA* (*Aspidium spinulosum*, var. *elevatum*, Braun in Doell, Rhein. Fl. 18), occurs at Cothill, Sandhurst, &c.

Var. *EXALTATA* (*A. exaltatum*, Lasch. in Verh. Prov. Brand. ii. (1860) 79), see Rabenh. l. c. 431 and 437, is a form with darker-coloured fronds and more curved sides to the lamina, which is found in damp woods, as at Wytham, Sandhurst, Windsor Park, &c.

D. spinulosa is recorded for all the bordering counties except Wiltshire.

D. dilatata, Asa Gray, Man. U. S. 631 (1848). *Broad Shield Fern*.

Lastrea dilatata, Presl, Tent. Pterid. 77 (1836). *Aspidium dilatatum*, Sm. Fl. Brit. iii. 1125 (1804), and E. B. 1461. *Polypodium dilatatum*, Hoffm. Deutsch. Fl. ii. 7 (1795). *Nephrodium dilatatum*, Desv. in Ann. Soc. Linn. de Paris, vi. (1827) 261.

Top. Bot. 517. Syme, E. B. xii. 82, t. 1857. Nyman, 866. Fl. Oxf. 361. Native. Sylvstral. Woods, thickets, and heaths. Local. P. July–September.

First record. *Filix ad ramosam accedens palustris, muscosa lanugine aspersa, pinnulis acutioribus*, nobis. In locis paludosis praesertim solo putrido, non solum circa Oxoniam sed et aliis comitatibus Angliae provenit, (Bobart) Morison, *Hist. Ox.* iii. 579, 1699.

1. **Isis.** Wytham Woods. Cumnor. Appleford. Buscot. Buckland. Pusey.
2. **Ock.** Bagley Wood, *Baxter*, *Stirp. Crypt. Ox.* 1825. Powder Hill Copse, *Boswell*. Marcham, *Walker*. Hen Wood. Tubney. Frilford. Cothill. Wittenham.
3. **Pang.** Cold Ash Common. Oare. Basildon. Unwell Wood. Fence Wood. Bucklebury. Hawkridge Wood. Ashampstead. Ashridge Wood. Plentiful on hazel stumps in a pond near Tilehurst. Near Tidmarsh.
4. **Kennet.** Newbury, *Bicheno*. Mortimer, *Tufnail*. Greenham Common. Inkpen. Snelsmore. Wickham. Wasing. Brimpton. Padworth. Upton. Burghfield. Hampstead Marshall. Silchester. Aldermaston.
5. **Loddon.** Wellington College. Sandhurst. Blackwater. Finchampstead. Risely. Long Moor. Wokingham. Bearwood. Early. Bulmarsh. Coleman's Moor. Bracknell. Easthampstead. Binfield. Windsor Park. Cranbourn Chase. Ashley Hill. Bowsey Hill. Waltham.

Var. *TANACETIFOLIA* (*Polystichum tanacetifolium*, DC. Fl. Fr. ii. 562), occurs at Wytham, Aldermaston, Fence Woods, Mortimer, Sandhurst, &c.

D. dilatata is recorded for all the bordering counties.

POLYPODIUM, Linn. Gen. n. 1043 (Tournefort, Inst. t. 316).

P. vulgare, Linn. Sp. Pl. 1085 (1753), and of C. B. Pin. *Common Polypody*.

Top. Bot. 509. Syme, E. B. xii. 38, t. 1842. Nyman, 867. Fl. Oxf. 362. Native. Septal, &c. Walls, banks, pollard-willows, tree-trunks, base of hedges, &c. Rather common and generally distributed. P. August–October.

First record. *Polypodium murale*, *pinnulis serratis*, walls of Windsor Castle, found by the Rev. Mr. Manningham, Ray, Syn. ed. 3, 117, 1724, and Du Bois Herb. Oxford, c. 1700.

The *Polypody*, after the Bracken and the Male Fern, is our commonest species of the genus, and too frequent to need a list of localities. It occurs near Ilsley at an elevation of 600 feet above sea level.

The var. *SERRATUM*, Willd. Sp. Pl. v. 173 (1810), was probably the form found by Dr. Manningham; I have seen it near East Ilsley, &c. *Polypodium vulgare* is found in all the bordering counties.

PHEGOPTERIS, Fée, Gen. Fil. 242 (1850–2). See Presl. Tent. Pterid. 179 (1836).

[**P. DRYOPTERIS**, Fée, Gen. Fil. 243 (1850–2). *Oak Fern*.

Polypodium Dryopteris, Linn. Sp. Pl. 1093 (1753). *Aspidium Dryopteris*, Baumg. Enum. Trans. iv. 29 (1846). Syme, E. B. xii. 46, t. 1845.

Is recorded for Hants, with some doubts as to its being native, and from the Chiltern country in Bucks and in Oxfordshire.]

[**P. CALCAREA**, Fée, Gen. Fil. 243 (1850–2). *Limestone Polypody*.

P. Robertiana, Braun in Sched. vide Rabenh. Krypt. Fl. 303. *Polypodium Robertianum*, Hoffm. Deutsch. Fl. Crypt. Add. 10 (1795). *P. calcareum*, Smith, E. B. t. 1525, and Fl. Brit. iii. 1117 (1804). *Aspidium Robertianum*, Luerissen in Asch. Syn. i. 22, 1896. Syme, E. B. xi. 48, t. 1846.

Is recorded for Oxfordshire, Bucks, Wilts, and E. Gloucestershire.]

P. polypodioides, Fée, Gen. Fil. 243 (1850–2). *Beech Fern*.

P. Phegopteris, Underw., Small in Bull. Torrey Club, xx. (1893) 462.

Polypodium Phegopteris, Linn. Sp. Pl. 1089 (1753). *Aspidium Phegopteris*, Baumg. l. c. 28.

Top. Bot. 509. Syme, E. B. xii. 50, t. 1847. Nyman, 867.

Native. Sylvestral. Shady woods. Very rare. P. July–September. First found by Mr. F. Tufnail in 1892.

4. Kennet. In ditches in wooded country near Mortimer, Tufnail.

The Beech Fern is recorded from Gloucestershire only of the bordering counties, but it has been found in Hampshire.

OSMUNDA, Linn. Gen. n. 1036 (Tournefort, Inst. t. 324).

O. regalis, Linn. Sp. Pl. 1065 (1753), and of Gerard, 971. *Flowering Fern*.

Top. Bot. 522. Syme, E. B. xii. 30, t. 1838. Nyman, 869. Fl. Oxf. 363. Native. Uliginous. Boggy spots in shady woods. Very rare. P. June–September.

First record. *Filix florida*, neere Redding, E. Ashmole's MS. 1651.

Osmunda regalis, Bagshot Heath, Mr. Doody, Ray, Syn. ed. 2, 345.

1696. *Filix botrytis sive florida major pinnulis non dentatis ex adverso nascentibus, nobis*, Osmunda, Adv. Lob. Comitatu Bercheriae . . . provenit, (*Bobart*) *Morison, Hist. Ox.* iii. 593, 1699.

3. Pang. In a wood belonging to Lord Wantage in the central portion of the district, very fine specimens.
4. Kennet. Woodhay, *Weaver*. [The High Clere locality given by *Mr. Reeks* is in Hampshire.] Ufton Wood.
5. Loddon. Coleman's Moor and Early Heath, *MS. in Ray!* Bagshot Heath, *Doody*. [The locality may have been in Surrey.] In great abundance at the end of Sunninghill Heath in a ditch on right hand going to Bracknell, *Lightfoot's MS.* Woods near Wellington College, almost extinct, *Penny!* Near Reading, *Ashmole*. Between Wargrave and Bisham, 1894. Near Bearwood, 1895. Finchampstead. Given in Britten's *Contributions* for North Berkshire on the authority of Mr. Boswell, but there is some misunderstanding, as Mr. Boswell has told me he never gathered it in the county.

Osmunda is recorded for the counties of Bucks, Surrey, and Hants.

OPHIOGLOSSUM, Linn. Gen. n. 1035 (Tournefort, Inst. t. 325).

O. vulgatum, Linn. Sp. Pl. 1062 (1753). *Adder's Tongue*.

Ophioglossum, Gerard, 327.

Top. Bot. 524. Syme, E. B. xii. 19, t. 1835. Nyman, 870. Fl. Oxf. 364. Native. Pascual. Meadows, pastures, grassy rides in woods. Locally common. P. May-July.

First record. In a close between Botley and Mrs. Bateman's house on the West side of Oxford, *Wm. Coles, Adam in Eden*, 559, 1657. *Adder's tongue* in all ye meadows about Oxford, *MS. note in Lyte's Herball*, 1660.

1. Isis. Shrivenham. Wytham Meadows. Near Cumnor by the Blind-Pinnocks. Idstone, in a small wood.
2. Ock. Near Bagley Wood, *Boswell in Phyt.* iv. (1860) 100. Marcham, *Walker*. Denchworth, *Wait*. Meadow at Fyfield, *Miss F. M. Parker*. Plentiful in some of the meadows between Blewbury and Hagbourne. In Thorncroft Meadow, Blewbury, *J. Lousley in Russell's Cat.* 1839. Hinksey Meadows. Radley. Abundant and luxuriant in the large meadow between Radley and Abingdon.
3. Pang. Near Bradfield.
4. Kennet. Near Newbury, *Weaver*. Shaw. Near Theale.
5. Loddon. Included in the *Wellington College List*. Park Place, *Tufnail*. Near Twyford, *Dr. Ashby*. Quarry Wood, *Britten*. Bisham. In Windsor Park, rather plentifully.

Near Cumnor the fertile spikes were often two on one plant.

Ophioglossum is found in all the bordering counties.

BOTRYCHIUM, Swartz in Schrad. Journ. ii. (1800) 110.

B. Lunaria, Swartz, l. c. 111 (1800). *Moonwort*.

Osmunda Lunaria, Linn. Sp. Pl. 1064 (1753), p. p.

Top. Bot. 523. Syme, E. B. xii. 24, t. 1837. Nyman, 870. Fl. Oxf. 363.

Native. Ericetal. Dry grassy pastures, heaths. Very rare. P. May-July.

First record. *Lunaria minor*, Small Moonwort. In montosis et ericetis.

In several places near Oxford, and *Lunaria minor ramosa*; three miles from Oxford near the Blind-Pinnocks, *Merrett*, *Pinax*, 73, 1666.

1. *Isis*. Near the Blind-Pinnocks [which are near Cumnor], *Merrett*.

2. *Ock*. In Radley Park.

5. *Loddon*. In the grounds of Wellington College, *Penny*.

Botrychium Lunaria is recorded for all the bordering counties except Buckinghamshire, but it is very rare in Oxfordshire.

EQUISETACEAE, Rich. in Michx. Fl. Bor. Am.

ii. 281 (1803).

EQUISETUM, Linn. Gen. n. 1033 (Tournefort, Inst. t. 307).

E. maximum, Lam. Fl. Fr. i. 7 (1778), auct. var. *Great Horsetail*.

E. telmateia, Ehrh. in Hann. Mag. 1783, 287, the name adopted by Milde and Rabenhorst. *E. fluviatile*, Sm. E. B. t. 2022. Fl. Brit. 1104 (1804), not of Linn.

Top. Bot. 531. Syme, E. B. xii. 150, t. 1888. Nyman, 859. Fl. Oxf. 355.

Native. Sylvestral, &c. Wet shady places, swampy woods, hedges, &c. Locally common, but absent from considerable areas. It is usually to be met with at the junction of a pervious with an impervious stratum, as of the Coralline Oolite with the Oxford Clay, and of the Greensand with the Kimeridge Clay. P. March-April.

First record. *E. fluviatile*. Between Greenham Common and Thatcham, *Russell's Cat*. 1839.

1. *Isis*. Near Cumnor. Wytham Woods. Merley Wood. Buscot. Near Faringdon.

2. *Ock*. The Butts, South Hinksey, *Whitcell*. Chawley Hurst. Ferry Hinksey. Boar's Hill.

3. *Pang*. Oare.

4. *Kennet*. Greenham Common and Thatcham, *Russell*. Wood near Snelsmore Common, *W. M. Rogers*. Newbury.

5. *Loddon*. Windsor Park. Bowsey Hill.

Var. *SEROTINUM* (A. Br. in Sill. Amer. Journ. xlv. (1844) 84, sub *E. telmateia*), in which the fertile stem resembles the barren one, occurred near South Hinksey in 1893. In dry seasons, as 1894, some

plants at Hinksey became much dwarfed—var. *breve*, Milde, Mon. Equis. 248, but it is only a state.

Equisetum maximum is recorded for all the bordering counties.

E. arvense, Linn. Sp. Pl. 1061 (1753), and Herb. *Field Horsetail.*

E. segemale, Gerard, 952.

Top. Bot. 531. Syme, E. B. xii. 152, t. 1889. Nyman, 859. Fl. Oxf. 356. Native. Agrestal. Cultivated and waste ground, railway-banks and sidings. Abundant through the county. P. Fruiting stems appear in March.

First record. Hinksey, Mr. Baxter, MSS. 1820.

A very variable species with barren stem varying from four inches to four feet in height, according to situation.

Var. *NEMOROSUM*, A. Braun in Doell, Rhein. Fl. 27 (1843) (*E. pratense*, Roth), is a large shade form found in damp shady situations, as at Wytham and South Hinksey.

The teeth of the sheath on the sterile stem are broader and not so subulate as in the ordinary plant.

Var. *DECUMBENS*, Meyer, Chlor. Hannov. (1836), is a prostrate, caespitose form, not unfrequent on railway-ballast in sandy places, as at Padworth, Sandhurst, and in cornfields.

Var. *RAMULOSUM*, Rupr. Beitr. iii. (1845) 21, a form compoundly branched, occurs on dry sandy soil, as near Cothill.

E. arvense is found abundantly in all the bordering counties.

E. sylvaticum, Linn. Sp. Pl. 106 (1753), and Herb. *Wood Horsetail.*

E. sylvaticum, Gerard, 953.

Top. Bot. 532. Syme, E. B. xii. 156, t. 1891. Nyman, 859. Fl. Oxf. 356. Native. Ericetal and sylvestral. Shady woods, damp heathy places.

Very local. P. Fertile spike appears in April.

First record. In ericetorum montanorum locis udis cum Gramine tomentoso pone Chilswell, Prof. Dillenius in Herb. Oxf. circa 1730, and Sir Joseph Banks in Herb. Brit. Mus. 1760.

2. Ock. Above Childswell Farm, Dillenius. [Still there.] Bagley Wood, Baxt. Stirp. Crypt. Ox. 1828.

3. Pang. In Oare Wood. In Fence Wood and near Cold Ash Common.

4. Kennet. Aldermaston Woods, near the Decoy. Mortimer West Wood and near Aldermaston Soak. Greenham Common.

5. Loddon. Included in the Well. Coll. List. Arborfield, Tayler. Finchampstead. Sandhurst.

Var. *CAPILLARE* (Hoffm. Deutsch. Fl. 3 (1795), as a species), Milde, Nov. Act. xxvi, ii. (1858) 433. In Aldermaston Woods, see the Rep. of Bot. Exch. Club, 1888. Mortimer West Wood.

E. sylvaticum is recorded for all the bordering counties, but it is probably extinct in Oxfordshire.

E. palustre, Linn. Sp. Pl. 1061 (1753), and of Lobel. *Marsh Horsetail.*

In the Linnaean Herbarium one specimen on the sheet of *E. palustre* is *E. arvense*.

Top. Bot. 533. Syme, E. B. xii. 157, t. 1892. Nyman, 860. Fl. Oxf. 356. Native. Paludal. Marshy and boggy places, river-banks, &c. Not uncommon and widely distributed. P. June–August.

First record. Prope Bottle [Botley], April, *Prof. Dillenius in Herb. Oxf.* 1744. Near Oxford, *Sir Joseph Banks*, in *Herb. Brit. Mus.* 1760.

1. *Isis*. Wytham Wood. Eynsham. Appleton. Buscot. Coleshill, &c.

2. *Ock*. Boar's Hill. Ferry Hinksey. South Hinksey. Kennington. Radley. Cothill. Marcham. Frilford. Steventon. Hagborne.

3. *Pang*. Moultsford. Pangbourn. Bradfield. Bucklebury. Oare, &c.

4. *Kennet*. Abundant about Newbury. Greenham. Benham. Kintbury. Chilton Foliat. Theale. Snelsmore. Burghfield. Aldermaston. Padworth. Mortimer.

5. *Loddon*. Sonning Meadows, very fine, *Tufnail*. Coleman's Moor. Wokingham. Bracknell. Wellington College. Sandhurst. Easthampstead. Ascot. Windsor Park. Virginia Water. Bray. Waltham. Shottesbrooke. Cookham, &c.

Var. *NUDUM*, Duby, Botan. Gall. 535 (1828). Snelsmore Common.

Var. *POLYSTACHIUM*, Vill. Hist. Pl. Dauph (1786), teste Milde, Mon.

Equis. 329. Near Wokingham, by the railway, *Tufnail*. Near Sandhurst.

Var. *VERTICILLATUM*, A. Br., *f. longiramosa*, Klinge. Wytham.

E. palustre occurs in all the bordering counties.

E. limosum, Linn. Sp. Pl. 1062 (1753). *Smooth Horsetail.*

E. nudum laevius nostras, Ray, Syn. 131. *E. Heleocharis*, Ehrh. Hann. Mag. (1783) 286.

Top. Bot. 533. Syme, E. B. xii. 159, t. 1893. Nyman, 859. Fl. Oxf. 356.

Native. Paludal, lacustral. Ditches, ponds, slow streams, preferring still water. Very common in the low-lying portion of the county.

P. June–August.

First record. In the ditches and wet meadows below Blewbury. In Lower Farm Close, Mr. J. Lousley in *Russell's Cat.* 1839.

1. *Isis*. Very abundant in Wytham Meadows, where intermediates between it and the var. *E. fluviatile*, Linn., may be seen. Appleton. Buscot. Buckland. Coleshill. 2. *Ock*. Kennington. Between Abingdon and Radley, in the large meadow, especially luxuriant with all intermediate conditions. Marcham. Wittenham. Steventon. Uffington. 3. *Pang*. Moultsford. Pangbourn. Tilehurst. Bradfield. 4. *Kennet*. Southcote. Theale. Newbury. Kintbury. Hungerford. Benham. Thatcham. Hampstead Marshall. Aldermaston. Mortimer. 5. *Loddon*

Bulmarsh, *Tufnail*. Sonning. Wargrave. Bisham. Old Windsor. Windsor Park. Coleman's Moor. Bracknell. Blackwater. Bagshot. Finchampstead.

The typical form is the *E. limosum*, var. *aphyllum*, Roth, Tent. Fl. Germ. 9 (1800), teste Milde.

Var. *FLUVIATILE* (Linn. Sp. Pl. 1062, as a species), var. *ramosum*, Gren. et Godr. Fl. Fr. iii. 644. A stouter form with thicker stem and regular whorls of branches, but which is connected with the type by many intermediate forms, is also widely distributed. I have notes of its occurrence in the following localities, but the plant is much more frequent than these would suggest.

1. *Isis*. Wytham Meadows. Near Eynsham. Buckland. Near Binsey.
2. *Ock*. Cothill. Abingdon. Wantage. Wittenham.
3. *Pang*. Pangbourn. Moulsoford.
4. *Kennet*. Aldermaston. Benham. Sandleford. Theale.
5. *Loddon*. Sonning Meadows, *Tufnail*. Wargrave. Loddon Bridge. Bisham. Virginia Water.

E. limosum is found in all the bordering counties.

[**M.** LITORALE, Kuehlew. ap. Rupr. Beitr. zur Pflanz. des Russ. Reiches, iv. (1845) 91. *E. arvensi-limosum*, Lasch. Has been recorded for Surrey, and is very likely to be found in the vicinity of Sandhurst.]

[**M.** HYEMALE, Linn. Sp. Pl. 1061 (1753), and Herb. Syme, E. B. xii. 161, t. 1894. Is recorded for Surrey.]

LYCOPODIACEAE, Rich. in DC. Fl. Fr. ii. 571 (1805).

LYCOPODIUM, Linn. Gen. n. 1049 (Dill. Hist. Musc. 441).

L. Selago, Linn. Sp. Pl. 1102 (1753). *Fir Club Moss*.

Selago vulgaris, *Abietis rubrae facie*, Dill. Hist. Muscor. 435.

Top. Bot. 527. Syme, E. B. xii. 13, t. 1830. Nyman, 873. Fl. Oxf. 364. Native. Ericetal. Heathy places. Very rare. P. July–August.

First record. Dr. Beke [Beeke] has found the *Lycopodium Selago* in a bog on Ufton Common, *Lyson's Magna Brit.* 1806.

4. *Kennet*. Ufton Common, Dr. Beeke. Snelsmore, *Bicheno*.

Lycopodium Selago is recorded from all the bordering counties except E. Gloucestershire.

L. inundatum, Linn. Sp. Pl. 1102 (1753). *Marsh Club Moss*.

Top. Bot. 526. Syme, E. B. xii. 14, t. 1831. Nyman, 872. Fl. Oxf. 365. Native. Uliginal. Bare marshy spots on peaty heaths. Very local.

P. August–September.

First record. *Muscus terrestris repens, clavis singularibus foliolis erectis*. It grows on Bagshot Heath, *Herb. Du Bois*, at Oxford, collected about 1696. *L. inundatum*, Ufton Common, Dr. Beeke in *Lyson's Magna Brit.* 1806.

4. **Kennet.** Ufton Common, in a bog, *Dr. Beeke, l.c.* Greenham Common, *Rupert Jones*. [It is still there.] Inkpen Common, *Herb. Brit. Mus.* 1817. Snelsmore Common.
5. **Loddon.** Bagshot Heath, *Herb. Du Bois*, 1696. At Virginia Water, *Gotobed* in *Bot. Guide*, 1805, in *Mavor's Agr. Berks*, 1809, and *Sm. Engl. Fl.* iv. 332 (1828). Wokingham Heath, *Ed. Forster* in *Herb. Brit. Mus.* Abundant in a bare piece of peaty soil both north and south of Wellington College Station. Also in Wellington College grounds. Near Sandhurst.

L. inundatum is recorded for the counties of Surrey, Hants, and Bucks.

L. clavatum, Linn. Sp. Pl. 1101 (1753). *Club Moss*.

Top. Bot. 525. Syme, E. B. xii. 16, t. 1833. Nyman, 872. Fl. Oxf. 364. Native. Ericetal. Heathy places. Very rare. P. July-August.

First recorded by Mr. Doody in *Ray's Syn.* ed. 2, 345, 1696.

4. **Kennet.** [Near Elcot], *Reeks in Britt. Contr.*
5. **Loddon.** *Muscus clavatus seu Lycopodium*, Ger. Likewise on Bagshot Heath on the left hand of the deep Road, about half a mile on this side of a place call'd my Lord Ball's Chappel, beyond Bagshot, *Doody, l.c.* [Is the locality in Surrey?]

L. clavatum is recorded for all the bordering counties except E. Gloucestershire.

[**L. ALPINUM**, Linn. Sp. Pl. 1104, var. *DECIPIENS*, Syme, t. 1834* a. [nomen solum.]

L. complanatum, Linn., Druce and Carruthers in *Journ. Bot.* (1882) 321.

L. complanatum, var. *fallax*, Celak. *Prod. Fl. Boehm.* i. 14 (1869). *Baenitz*, *Herb. Europ.* 1892. Is recorded for Gloucestershire.

L. alpinum, as the type or as the above variety, is recorded from Bramshot in Hants.

MARSILIACEAE, Bartl. Ord. Nat. 15. S. F. Gray, Nat. Arr. ii. 24 (1821).

PILULARIA, Linn. Gen. n. 1047 (Vaill. Bot. Par. 159).

P. globulifera, Linn. Sp. Pl. 1100 (1753). *Pill Wort*.

Pilularia palustris juncifolia, Vaill. Bot. Par. 159.

Top. Bot. 530. Syme, E. B. xii. 2, t. 1825. Nyman, 870.

Native. Uliginous. Moist spots on heaths and gravelly margins of ponds in heathy situations. Very local. P. July-September.

First found in Berkshire by the author in 1891.

5. **Loddon.** By a pond near Wellington College.

Pilularia is recorded for Surrey, South Wilts, Hants, and Bucks.

CHARACEAE, L. C. Rich. in H. B. K. Nov. Gen. Amer.

i. 45 (1805).

CHARA, Linn. Gen. 1066 (Vaill. A. G. 1719).**C. fragilis**, Desv. in Lois. Not. Pl. de France, 137 (1810).*C. capillacea*, Thuillier, Fl. Par. 474 (1799). *C. globularis*, Thuill. l. c. 472 (nomen prius), Groves, H. & J. in Journ. Bot. (1880) t. 207, 101.

Syme, E. B. xii. 213, t. 1920. Nyman, 874. Fl. Oxf. 365.

Native. Lacustral. Ditches, brooks, ponds, canals, and rivers. Locally abundant and widely distributed. June–August.

First recorded by the author in *Rep. Bot. Rec. Club*, 1885, and in *Fl. Oxf.* 365. See also *Journ. Bot.* (1885) 81.Typical *C. fragilis* is rather rare in the county. It has been noticed at Cothill, near Uffington, at Aldermaston, near Hurst, and in Virginia Water. Our more frequent plant is var. *HEDWIGII* (Agardh in Bruzel Obs. Char. 7 & 21, as a species), Groves, l. c.

1. **Isis.** In the Thames and its ditches between Eynsham and Godstow, in some places forming dense masses of vegetation, but not often found in equal quantity in two consecutive years. In the canal at Shrivenham.
2. **Ock.** Near Ferry Hinksey and South Hinksey, in great quantity. See *Journ. Bot.* (1887) 146. Occasionally in the river between Oxford and Wallingford. Plentiful in the canal between Abingdon and Wantage. Between Wantage and Uffington. Near Marcham.
3. **Pang.** In the Thames near Moulsoford, and here and there between Wallingford and Reading. In a pond near Unwell Wood.
4. **Kennet.** Plentiful in ditches below Burghfield Bridge, *Twynail*. In the canal at Aldermaston and Hampstead Marshall. In the Kennet near Newbury. In a pond near West Ilsley.
5. **Loddon.** In the Thames near Sonning. Near Old Windsor. Virginia Water.

A form approaching to var. *capillacea*, Coss. et Germ., occurred in a pond near Hurst.*C. fragilis* is recorded for all the bordering counties except East Gloucestershire.[**C. CONNIVENS**, A. Br. in Flora, 1835, i. 73. Syme, E. B. xii. 215, t. 1921.
Is recorded from Hants.]**C. contraria**, A. Br. in Kuetz, Phyc. Germ. 258 (1845).*C. foetida*, var. *contraria*, Coss. et Germ. Fl. Env. Par. ed. 2, 890.

H. & J. Groves, Journ. Bot. (1881) t. 224, 354. Syme, E. B. xii. 204, t. 1915. Nyman, 875. Fl. Oxf. 366.

Native. Lacustral. Ponds and ditches. Rare or overlooked. P. July August.

First found in Berkshire by the author in 1886 (1890).

1. *Isis*. In a pond in Wytham Park.

2. *Ock*. Frilford. Cothill. In the canal near Marcham.

The Wytham plant is the var. *hispidula*, Braun in Schweiz. Charac. 16.

C. contraria is recorded for Surrey, Hants, and Oxfordshire.

[*C. ASPERA*, Willd. in Gesell. Nat. Freunde Berl. Mag. iii. (1809) 298.

C. hispidula, Linn. Herb., and Horneman in Fl. Dan. t. 1940.

Groves, l. c. t. 207, 129. Syme, E. B. xii. 210, t. 1919.

Is recorded for Surrey and Hants; in the latter county it occurs in Fleet Pond, and is quite likely to be found in some of the ponds near Sandhurst.]

C. hispidula, Linn. Sp. Pl. 1156 (1753), p.p., and of Oeder in Fl. Dan. t. 154 (1764), not of Linn. Herb. *Prickly Chara*.

Groves, l. c. t. 208, 131. Syme, E. B. xii. 206, t. 1916. Nyman, 874. Fl. Oxf. 365.

Native. Lacustral. Ponds, artificial pieces of water, &c. Rare. July-September.

First record, and first as British. *Hippuris Coralloides*. My friend Mr. Leonard Buckner was the first that found this plant and brought it to me; he had it 3 miles beyond Oxford, a little on this side Euansham-ferry in a bog upon a common by the Beacon hill neere Cummer wood, in the end of August, 1632, Ger. Em. 1115, 1633. See also Ray's *Hist. Plant.* 1686. *Equisetum fragile majus subcinereum aquis immersum*. In piscina prope molendinum haud longe à villa Besorsleigh appellata, reperi, (Bobart) Morison, *Hist. Ox.* iii. 621, 1699. The specimen preserved in Herb. Oxf. is *C. hispidula*. See also Ray's *Synopsis*, ed. 3 [Dillenius], and Smith, *English Flora*, i. 7, where it is referred to var. *b*, *C. tomentosa*, Huds. not of Linn. It bears [Sir J. Smith says] prickles under the flowering branches only, but has no other distinctive mark.

1. *Isis*. Near Beacon Hill, Eynsham, Gerard. Near Besilsleigh, Bobart. Pusey, Boswell. Plentiful in Buckland Lake. In Buscot Lake, but rare. It is abundant in the Wilts and Severn Canal, which is in Gloucestershire and Wiltshire, close to the Berkshire boundary; but I have not yet found it in the Thames, into which the canal enters near Lechlade. In Wytham Woods, not very far from the locality given in Gerard.

2. *Ock*. Very abundant in Cothill Bog. See *Report of Bot. Record Club* for 1885, and *Journ. Bot.* 146 (1887). Canal near Wantage. In a pond on the Ridgeway, over 600 feet above the sea-level.

A form which grew in Cothill Bog in 1886 was reported on by Messrs. Groves as 'an intermediate sort of plant; it is evident that it must be considered a form of *hispidula* approaching *papillosa*, of forms of

which it has much the appearance.' *C. vulgaris* and *C. contraria* grew with it.

C. hispida is recorded for all the bordering counties except Bucks, where I have seen it near Brickhill.

There is a specimen of *C. hispida* in Sir J. E. Smith's Herbarium, which was sent him by Dr. Williams in 1799, from the sheet of this species in the Morisonian Herbarium at Oxford.

C. vulgaris, Linn. Sp. Pl. 1156, p.p. (1753).

C. foetida, A. Br. in Flora (1835), i. 63. Ann. Sc. Nat. (1834) 354.

C. vulgaris foetida, Vaill.

Groves in Journ. Bot. l. c. t. 208, 133. Syme, E. B. xii. 203, t. 1914.

Nyman, 875. Fl. Oxf. 365.

Native. Lacustral. Ponds, ditches, marshes, canals, &c. Common and generally distributed. P. June–August. More frequent in clayey districts.

First recorded without locality in *Britt. Contr.* 1871. See also the author in *Rep. of Bot. Record Club*, 140, 1880.

Var. **PAPILLATA**, Wallr. Ann. Bot. 183 (1815). See *Journ. Bot.* (1885) 82.

1. **Isis**. Buckland. 2. **Ock**. Abingdon. Cothill. Marcham, 1882. 3. **Pang**. Southcote.

Var. **LONGIBRACTEATA**, Kuetz, Sp. Alg. 524 (1849), is rather a frequent form, especially in deep still water. See *Journ. Bot.* (1890) 66.

1. **Isis**. Wytham. Near Bablock Hythe. 2. **Ock**. Marcham. Abingdon. Wantage. 3. **Pang**. Moulsoford. 4. **Kennet**. Padworth. Aldermaston. Hampstead Marshall. 5. **Loddon**. Sonning, &c.

C. vulgaris is recorded for all the bordering counties.

[**LYCHNOTHAMNUS STELLIGER**, A. Br. Frag. Mon. Char. 102.

Chara obtusa, Desv. in Lois. Not. Pl. de France, 136. *C. stelligera*, Bauer in Moessl. Handb. der Gew. ed. 2, 1595. Syme, E. B. xii. 195, t. 1910.

Is recorded for Surrey, and may be found near Windsor.]

[**LAMPROTHAMNUS ALOPECUROIDES**, A. Br. Fr. Mon. Charac. 100.

L. papulosus. *Chara papulosa*, Wallr. Fl. Crypt. Germ. ii. 107 (1833). *Lychnothamnus alopecuroides*, H. & J. Groves in Journ. Bot. (1880) 161.

Syme, E. B. xii. 193, t. 1909, as *Chara alopecuroides*, 'Delile,' A. Br. Schweiz. Char. 13 (1847).

Is recorded for the Isle of Wight, but is not likely to be found in Berkshire.]

TOLYPELLA, Leonh. in Lotos (1863) 12.

T. glomerata, Leonh. in Lotos (1863) 129.

Nitella glomerata, Chevall. Fl. Gen. ed. 2, ii. 124 (1836). *Chara glomerata*, Desv. in Lois. Not. l. c. 135 (1810).

Groves in Journ. Bot. (1880) t. 209, 162. Syme, E. B. xii. 185, t. 1905.

Nyman, 879.

Native. Lacustral. Ditches of brackish water, ponds, and canals.

Very local and sporadic. June-July.

First found in Berkshire by the author in 1887. See *Rep. Bot. Exch. Club* (1891) 349, (1892) 395.

1. *Isis*. Sparingly in a small pond on the south side of Wytham Hill, where I found it when botanizing with *Mr. H. E. Garnsey*.
2. *Ock*. In 1891 it was very plentiful in a ditch of brackish water in the saline meadow near Marcham, where it occurred with *C. vulgaris*. It was in the same situation in the following year, and also occurred in considerable quantity along the margin of the Wantage Canal between Marcham and Abingdon in 1892, and less plentifully in 1893.

T. glomerata is recorded for Hants only of the bordering counties.

T. intricata, Leonh. in *Lotos* (1863) 32.

Nitella intricata, Agardh, *Syst. Alg.* 125, p.p. *Chara intricata*, Roth, *Cat. fasc. ii.* 125 (1800).

Groves in *Journ. Bot.* (1880) t. 209, 163. Syme, *E. B.* xii. 187, t. 1907. Nyman, 878.

Native. Lacustral. Ditches and streams. Very local. July-September. Rare and not permanent in its localities.

First found in Berkshire by the author in 1893.

2. *Ock*. In a ditch near South Hinksey in 1893 only.

T. intricata has been found in Oxfordshire and in Surrey.

T. prolifera, Leonh. *Lotos* (1863), 57 nomen.

Chara prolifera, A. Br. *Ann. Sc. Nat.* i. (1834) 352. *Nitella prolifera*, Kuetz, *Phyc. Germ.* 255 (1845).

Groves in *Journ. Bot.* l. c. t. 209, f. 12. Syme, *E. B.* xii. 189, t. 1908.

Native. Margins of streams. Very rare. July-August.

First found in Berkshire by the author in 1896.

2. *Ock*. In the Thames, on the Berkshire side of the stream, between the University Boat House and Oxford.

Discovered in Oxfordshire by my friend the Rev. G. R. Bullock-Webster in the canal between Kidlington and Oxford in 1896; it was owing to his finding this rare species in Oxfordshire that I gathered it in Berkshire, as I made especial search for it in our canals and streams. It was discovered in Northamptonshire by my friend Mr. Dixon in 1894 in the canal near Yelvertoft. Perhaps it is from this locality that we owe its introduction into both counties, as I am pretty confident it was not in the canal between Oxford and Kidlington in the eighties, having made very careful search of the water on many occasions.

The sporadic occurrence and inconstancy in the localities of this genus is very remarkable and awaits a satisfactory explanation.

T. prolifera is recorded only for Oxfordshire (as above) of the bordering counties.

NITELLA, Agardh, Syst. Alg. Intro. 27 (1824).

N. mucronata, Coss. et Germ. Fl. Env. Par. ed. 1, 683 (1845).

Chara mucronata, A. Br. in Ann. Sc. Nat. 2nd ser. i. (1834) 351, and in Flora, i. (1835) 52.

Groves, l. c. t. 210, 165. Syme, E. B. xii. 182, t. 1902. Nyman, 878.

Native. Lacustral. Ditches and streams. Very local and not permanent in its localities. July-September.

First found in Berkshire by the author in September, 1892. See *Rep. of Bot. Exch. Club*, 395, 1892.

1. *Isis*. In a small ditch which is fed by the Thames in the meadows between Godstow and the King's Weir, and in the River Thames in the same neighbourhood.

In August of the same year I found it growing in great quantity in Oxfordshire in a small ditch bordering Godstow Nunnery, where it remained through the autumn and was visible through the ice in the winter. By the succeeding March it had entirely disappeared, nor since that time has it again been found there, but I have seen small patches of it in the river between Godstow and Medley. It is very remarkable that *N. mucronata* and *Tolypella intricata*, which occur some seasons in such immense quantities over a limited area, should so completely disappear, as has been the case with the former species at Godstow, and with the latter at Marston in Oxfordshire, and at South Hinksey in Berkshire. I have yearly, for seven years, visited the locality for *T. intricata* at Marston without being able to find a scrap, whereas in 1889 a wagon load might have been collected. In 1897 it has, however, reappeared.

N. mucronata was first found in Britain by Dillenius near Thistleworth [Ileworth] in Middlesex about 1720. Specimens and description are preserved in Herb. Oxf. It was next recorded from a marsh ditch at West Grinstead in Sussex by Mr. Borrer, and after a lapse of nearly half a century was discovered by or in the river Ouse near Bedford, by my friend Mr. J. Saunders and Mr. A. H. Davies. The discovery of it in Oxfordshire was made by me in 1892, when I was showing a number of Extension students the classic locality for *Aristolochia Clematidis* near Godstow. In the following month I found it in Berkshire, in a locality only about half-a-mile from Godstow. Mr. H. Groves collected specimens from Godstow for his *Exsiccata*.

N. mucronata is recorded for Oxfordshire and for Hampshire.

N. translucens, Agardh, Syst. Alg. 124 (1824).

Chara translucens, Pers. Syn. ii. 531 (1807).

Groves, l. c. t. 210, 165. Syme, E. B. xii. 181, t. 1901. Nyman, 877.

Native. Lacustral. Ponds on peaty soil, very local. June-September.

First found in Berkshire by the author in 1887, and distributed through the *Bot. Exch. Club* of that year. See *Journ. Bot.* (1890) 68.

4. **Kennet.** In a pond on Burghfield Common, filling it to the exclusion of other aquatic vegetation. Two years after I could not see a specimen. Very plentiful in a pond in Ufton Woods. In a pond at Mortimer, near the Round Oak.

N. translucens, which is a very beautiful species, is recorded for Surrey and Hants, and I have found it in Bucks at Burnham.

N. flexilis, Agardh, Syst. Alg. 124 (1824).

Chara flexilis, Linn. Sp. Pl. 1157, p.p. (1753).

Groves, l. c. t. 210, 166. Syme, E. B. xii. 174, t. 1899. Nyman, 877. Fl. Oxf. 366.

Native. Lacustral. Very rare. A. July–August.

First recorded, but without locality, in *Britt. Contr.* 1871, but great doubt exists as to the record of the name of *C. flexilis* by British botanists before the publication of Messrs. Groves' monograph, as forms of *Nitella opaca* were generally confounded with it. Messrs. Groves do not cite the foregoing record. First certainly found in Berkshire by the author in 1893.

5. **Loddon.** In a pond near Finchampstead.

N. flexilis is only recorded with certainty for Surrey of the bordering counties.

N. opaca, Agardh, Syst. Alg. 124 (1824).

Chara opaca, Agardh in Bruzel, Obs. Char. 16 (1824). *C. flexilis*, Sm.

E. B. t. 1070, not of Linn. *N. syncarpa*, Chevall., var. *opaca*, Kuetz.

Groves, l. c. t. 210, 166. Syme, E. B. xii. 178, t. 1900. Nyman, 877. Fl. Oxf. 366.

Native. Lacustral. Ponds, ditches. Local and rather rare. May–July. First found in Berkshire by the author, 1882. Included on the authority of Mr. W. P. Hiern in *Groves' Characeae, Journ. Bot.* 5 (1884).

1. **Isis.** In a ditch near Faringdon, by the Thames.

4. **Kennet.** Near Aldermaston.

5. **Loddon.** Field pond near Binfield Park, *Rev. G. R. Bullock-Webster*, 1895. In Virginia Water, a large form. In a pond near Hurst Green. Near Ruscombe. In a pond near Finchampstead, 1891.

N. opaca is recorded for Surrey, Hants, and Oxfordshire; and I have found it in Bucks near Wycombe.

[**N. GRACILIS**, Agardh, l. c. 125. Syme, E. B. xii. 183, t. 1903. Has been found in Surrey.]

SUMMARY

Plants native to Berkshire	893
Plants which are denizens only	45
Colonists	56
	994
Species with erroneous or uncertain record	11
Plants now probably extinct in the county	4
Plants of casual occurrence or introduced	199
Total	1208

Thirty-three species have been erroneously recorded in addition to the above figures.

About 400 named varieties and forms and 70 hybrids have been observed.

In the Compendium to the *Cybele Britannica*, Mr. H. C. Watson made a classification of the British plants according to their distribution; he regarded the universally distributed plants as 'British,' the southern plants as 'English,' the species having their head-quarters in the western counties as 'Atlantic,' and the eastern plants as 'Germanic,' while the northern species were 'Scottish' or 'Highland'; 'Intermediate' was applied to plants having their head-quarters in the Midlands and thinning out to the north or south; and 'Local' was applied in a few cases to almost isolated species. These terms were further differentiated by combining them; thus, British-English means a plant of wide diffusion, with a tendency towards the southern type, and 'English-British' signifies a plant of a southern type widely diffused.

Adopting the specific limits laid down by Mr. Watson (and omitting 114 critical and other species, some of which have been included in the

British flora since the publication of the Compendium), our Berkshire flora is constituted as follows:—

English	183		
English-British	67		
„ Intermediate	3		<i>Myosotis sylvatica, Aquilegia, Carex elata.</i>
„ Germanic	47		
„ Atlantic	1		<i>Scutellaria minor.</i>
„ Local	3		<i>Elatine, Hydropiper, Sisymbrium Sophia, Tordylium (extinct).</i>
	—	304	
British	379		
British-English	111		
„ German	1		
„ Scottish	10		
„ Atlantic	1		<i>Capnoides claviculata.</i>
„ Intermediate	2		<i>Saxifraga granulata, Polygonum Bistorta.</i>
„ Highland	3		
	—	507	
Germanic	20		
Germanic-English	23		
„ British	4		<i>Astragalus danicus, A. glycyphylus, Convallaria, Hypochaeris glabra.</i>
„ Local	3		<i>Orchis militaris, O. Simia (extinct), Muscari (? casual).</i>
	—	50	
Atlantic	2		<i>Cervicina hederacea, Agrostis setacea.</i>
Atlantic-Local	1		<i>Illecebrum verticillatum.</i>
„ British	2		<i>Hypericum Androsaemum, Erodium moschatum.</i>
„ English	3		<i>Hypericum elodes, Cotyledon, Verbascum virgatum.</i>
	—	8	
Scottish	1		<i>Pinus sylvestris (replanted).</i>
Scottish-British	9		
„ Local	1		<i>Asperugo procumbens (casual).</i>
	—	11	
Intermediate	2		<i>Ribes nigrum, R. Grossularia.</i>
Intermediate-British	1		<i>Gagea fascicularis.</i>
„ English	1		<i>Poterium officinale.</i>
„ Local	1		<i>Campanula rapunculoides.</i>
„ Highland	1		<i>Galium sylvestre.</i>
	—	4	
	—	886	

The Scottish-British types are *Sagina subulata*, *Vicia sylvatica*, *Parnassia*, *Antennaria dioica*(?), *Pinguicula vulgaris*, *Galeopsis speciosa*, *Carex dioica*, *Phegopteris polypodioides*, and *Pyrola minor*.

The British-Highland types are *Vaccinium Myrtillus*, *Lycopodium Selago*, and *Chrysosplenium*.

The British-Scottish types are *Potentilla palustris*, *Pyrus Aucuparia*, *Geum rivale*, *Epilobium angustifolium*, *Gentiana campestris*, *Myosotis repens*, *Habenaria viridis*, *Eleocharis uniglumis*, *Scirpus caespitosus*, and *Botrychium*.

The plants which have been erroneously recorded for Berkshire are somewhat numerous. The following, almost without exception, belong to this category:—*Thalictrum majus*, *Cardamine impatiens*, *Draba inflata*, *Lepidium latifolium*, *Polycarpon tetraphyllum*, *Viola Curtisii*, *Linum angustifolium*, *Geranium sylvaticum*, *Vicia Orobus*, *Rosa villosa*, *Drosera anglica*, *Chrysosplenium alternifolium*, *Sedum-Forsteri*, *Peucedanum officinale*, *Cicuta virosa*, *Rubia peregrina*, *Cnicus heterophyllus*, *Orepis paludosa*, *Melampyrum arvense*, *M. sylvaticum*, *M. cristatum*, *Orobanche purpurea* (*coerulea*), *Veronica hybrida*, *Scrophularia Ehrharti*, *Salvia pratensis*, so far as Mr. Lousley's record is concerned, *Euphorbia platyphyllos*, *Allium Scorodoprasum*, *Habenaria albida*, *Cephalanthera ensifolia*, *Potamogeton gramineum* (*heterophyllus*), *Carex arenaria*, and *C. Oederi*.

Among the species recorded there are some which are doubtfully correct, either from the plant not being found actually in Berkshire, or because it may not have been properly identified. None of the following species belonging to this class have been met with by me in Berkshire as native plants:—*Dianthus deltoides*, *Lathyrus palustris*, *Rosa pimpinellifolia*, *Pyrus rotundifolia*, var. *decipiens* (*scandica*), *Tillaea*, *Antennaria dioica*, *Arctium tomentosum*, *Filago gallica*, *Ajuga Chamaepitys*, *Stachys germanica*, and *Calamagrostis lanceolata*.

The following plants, which have been recorded, were in all probability not native, and some of the records are of considerable antiquity; the author has been unable to verify their occurrence in the county:—*Anemone apennina* (alien), *Isatis* (casual), *Silene conica* (casual), *S. quinquevulnera* (casual), *Pyrus germanica* (alien), *Cerefolium sativum* (casual), *Doronicum plantagineum* (alien), *Polemonium* (alien), *Chenopodium Botrys* (casual), and *Aristolochia Clematitis* (alien).

Many plants credited to the county have either become much rarer in the progress of time, or their distribution must be very restricted and erratic, as I have been unable to discover them; these include *Lythrum Hyssopifolia*, *Crepis foetida*, *Inula Helenium*, *Damasonium Alisma*, *Dryopteris Thelypteris*, *Lycopodium clavatum*, and *L. Selago*.

The plants actually extinct appear to be *Teucrium Scordium*, *Tordylium maximum*,—which, if it occurred in Berkshire, was possibly not a native species,—*Inula Helenium*, and *Orchis Simia*. The list, fortunately, is not

a long one, and it is to be hoped that it will not be enlarged in the immediate future.

Mr. H. C. Watson, in the first edition of *Topographical Botany*, vol. ii. pp. 665-710, gives a comital census of British plants which shows in a tabular form their comparative distribution. It must be borne in mind that the census numbers there given are now much too small, as many additions have been made since the publication of that work. Adopting the list of species there given, with the specific limitations as made by Mr. Watson, we find that—

Of the 368 species which in that work are stated to be found in from 80 to 110 counties and vice-counties of Great Britain, all occur in Berkshire.

Of the 127 species found in from seventy to eighty counties, two inland species, *Sparganium natans* and *Eriophorum vaginatum*, are not recorded for Berkshire, but may possibly be found there.

Of the 117 plants recorded as occurring in from sixty to seventy counties, Berkshire has 108. The four inland species which are missing are *Empetrum nigrum*, *Cystopteris fragilis*, *Polypodium Dryopteris* (*Phegopteris Dryopteris*), and *Chrysosplenium alternifolium*; the two latter may yet be found. The five maritime species are not likely to occur.

Of the 103 species which are recorded from fifty to sixty counties, Berkshire has eighty-one. Eleven of the missing species are maritime. The nine inland species, not recorded for the county on recent or trustworthy authority, are *Vaccinium Oxycoccus* (*Oxycoccus quadripetala*), which may possibly be found in the bogs of the southern part of Berkshire, *Viola lutea*, *Thalictrum minus*, *Trollius*, *Myrrhis odorata*, *Geranium sanguineum*, *Campanula latifolia*, *Potamogeton heterophyllus* (*P. gramineum*), the last of which may be found in some of the large sheets of ornamental water which occur in the county, *Prunus Padus*, and *Vaccinium Vitis-idaea*. Of these species, *Trollius*, *Viola lutea*, *Prunus Padus*, and *Vaccinium Vitis-idaea* are northern plants or fond of mountainous districts. *Myrrhis*, a rather doubtful native, is also a plant found more frequently in northern Britain, and *Campanula latifolia* in southern England is always very local.

Of the 106 species stated to occur in from forty to fifty counties, Berkshire has seventy-eight. Of those missing, thirteen are maritime species, one of them, *Sclerochloa* (*Panicularia*) *distans*, being occasionally found inland. Five belong to northern species which do not reach so far south as Berkshire, while *Rubus saxatilis*, *Saxifraga hypnoides*, and *Lycopodium alpinum* belong to the Scottish group, which extends to the south of England in mountainous or hilly districts, although the *Lycopodium* has been found in Hampshire. *Habenaria albida* may possibly be discovered since it is found on the South Downs, but *Hymenophyllum unilateralis* is not likely to occur. Some of the remaining four species,

Dianthus deltoides, *Drosera anglica*, *Mentha rotundifolia*, and *Carex (diandra) teretiuscula*, may possibly be discovered.

Of the eighty-nine species recorded from thirty to forty counties, Berkshire has fifty-seven; of the thirty-two missing ones, fifteen are maritime and nine are northern plants which do not reach so far south as Berkshire. *Asplenium viride* is a plant of rocky situations; the absence, or almost entire absence, of *Rosa pimpinellifolia* accounts for the absence of *R. Sabini* and other members of the *R. involuta* group, since these are now considered to be hybrids of *R. pimpinellifolia* and *R. canina*. Some at least of the following local species may possibly be found:—*Linum angustifolium*, *Pyrola media*, *Pulmonaria*, *Carex filiformis*, *Malaxis paludosa*, and *Arundo Calamagrostis (Calamagrostis lanceolata)*.

Of the 103 species recorded from twenty to thirty counties, Berkshire has only fifty-one, but of the fifty-two missing ones, fourteen are maritime and twenty-one are northern species. Of the remaining plants, *Scirpus Savii (cernuus)* and *Rubia* are rarely found far inland, while *Impatiens Noli-tangere* is not native so far south, and *Arenaria verna* is a northern species with a solitary outlying station at Kynance Cove in Cornwall, and there as a variety, not as the typical plant. *Cicuta virosa*, although having an extensive range in Britain, is very local, and *Sparganium minimum* is also rare in southern England. The remaining species not hitherto recorded as native species of Berkshire, but two or three of which certainly may be discovered, are *Salix acuminata* (now considered to be a hybrid), *Campanula patula* (recorded as a casual plant), *Euphorbia platyphylla*, *Lastrea aemula (Dryopteris aemula)*, *Andromeda*, *Pinguicula lusitanica*, *Hymenophyllum tunbridgense*, *Cardamine impatiens*, *Symphytum tuberosum*, *Gastroidium*, and *Vicia Orobus*.

We now come to the more local British species, and in order to save space we shall enumerate, not the absentees, but the plants which occur in Berkshire, and are also found in twenty, or fewer than twenty, British counties and vice-counties.

Of the eleven plants found in twenty counties only, Berkshire has *Geranium rotundifolium*, *Oenanthe silaifolia*, *Linaria repens*, *Stachys ambigua*, and *Fritillaria Meleagris*.

Of the eleven plants found in nineteen counties only, Berkshire has *Fumaria Boraei*, *Cineraria (Senecio) campestris*, and *Galium sylvestre*.

Of the ten plants found in eighteen counties only, Berkshire has *Polygala vulgaris* and *Orchis incarnata* (these two plants are now known to belong to a larger number of counties than was formerly supposed).

Of the sixteen plants found in seventeen counties only, Berkshire has *Fumaria confusa*, *Medicago denticulata* (casual), *Epilobium tetragonum*, *Galium elongatum*, *G. erectum*, and *Apera Spica-venti*.

Of the seventeen plants found in sixteen counties only, we have

Anemone Pulsatilla, *Fumaria pallidiflora*, *F. muralis*, *Chenopodium ficifolium*, and *Lycopodium inundatum*.

Of the ten plants found in fifteen counties only, we have *Fumaria parviflora*, *Viola tricolor*, *Filago apiculata*, *F. spathulata*, and *Stratiotes Aloides* (the latter perhaps not truly native).

Of the twenty plants found in fourteen counties only, we have *Elatine hexandra*, *Vicia gracilis*, *Hieracium murorum*, *Polygonum nodosum*, *P. mite*, *Salix ambigua* (now considered to be a hybrid), and *Orchis maialis* (*O. latifolia*) (which belongs to more counties than those enumerated by Mr. Watson).

Of the twenty-two species which are recorded from thirteen counties only, we have *Iberis amara*, *Orepis biennis* (colonist), *Barkhausia* (*Crepis*) *foetida*, *Taraxacum erythrospermum* (now considered to be only a variety), *Hieracium rigidum* (not the type), *Asperugo procumbens* (not a native plant), *Potamogeton zosterifolius* (*compressum*), and *Carex Boeninghausiana* (*Boeninghausiana*) (which is now considered to be a hybrid of *C. paniculata* and *C. remota*).

Of the twenty-two plants which are recorded from twelve counties only, we have reported *Helleborus foetidus*, *Draba brachycarpa* (*Erophila praecox*), *Actinocarpus* (*Damasonium Alisma*), and *Agrostis setacea*.

Of the twenty-two plants recorded from eleven counties only, we have *Polygala calcarea* and *Ulex nanus* (*U. minor*); the census numbers of both species are under-estimated.

Of the thirteen species recorded from ten counties only, we have *Erodium moschatum*, *Barkhausia* (*Crepis*) *taraxacifolia* (now spreading over England), *Villarsia nymphaeoides* (*Limnanthemum peltatum*), *Teucrium Scordium* (probably extinct), and *Carex elongata*.

Of the eighteen species found in nine counties only, we have *Polygonum dumetorum*.

Of the twenty-four species found in eight counties only, we have *Fumaria Vaillantii*, *Gentiana germanica*, *Verbascum Lychnitis*, *Ornithogalum pyrenaicum*, *Potamogeton compressum* (*P. Friesii*), much under-estimated in its distribution, and *Viola lactea*.

Of the thirty-two species found in seven counties only, we have *Calamintha Nepeta* (*C. parviflora*) and *Caucalis latifolia* (as a casual).

Of the twenty-seven species found in six counties only, we have *Dianthus prolifer* (*Tunica prolifera*), *Epilobium lanceolatum*, and possibly *Ranunculus intermedius*.

Of the thirty species found in five counties only, we have *Adonis* (as a colonist), *Daphne Mezereum*, *Leucojum aestivum*, and possibly *Asarum europaeum*.

Of the thirty-one species found in four counties only, we have *Illecebrum verticillatum* and *Orchis militaris*.

Of the thirty-seven species found in three counties only, we are said to have *Pyrus scandica*, *Lythrum Hyssopifolia*, and *Elatine Hydropiper*, but

neither the *Pyrus* nor the *Lythrum* have been observed by the author, and the *Elatine* is very rare.

Of the fifty species found in two counties only, four have been recorded—*Ballota ruderalis* (which is now usually considered to be only a variety of *B. foetida*), *Tordylium*, and *Orchis Simia*, but the two former have not been seen by the author, and the latter is probably extinct; *Thlaspi perfoliatum* appears to have been introduced.

Of the fifty-eight species which are limited to a single county, we have no true representative, since *Rosa sepium* (*R. agrestis*), which Mr. Watson included in his list, has since been found in several counties.

If we compare the flora of Oxfordshire with that of Berkshire, we shall find that the two counties are more dissimilar than their contiguity would have led one to expect. Oxfordshire possesses a few interesting species not known to occur in Berkshire, and which are chiefly found on the Oolite and Forest-marble geological formations which do not extend into Berkshire. These species are *Thlaspi perfoliatum*, only found as a casual in Berkshire, *Cynoglossum montanum*, *Stachys germanica*, *Salvia pratensis* (perhaps only a casual in Berkshire), *Phegopteris calcarea* (*P. Robertiana*), and *Ophrys aranifera* (now possibly extinct); *Rumex limosus*, *Viola persicifolia*, and *Sonchus palustris*, from the once extensive fen district of Otmoor, but the two former not recently observed; *Cephalanthera ensifolia*, *Phegopteris Dryopteris*, and *Antennaria dioica*, which have not been observed by me in Berkshire, but are found on the Oxfordshire Chilterns; *Potamogeton decipiens*, *Rubus Powellii*, *R. fusco-ater*, *Teucrium Chamaedrys*, *Aristolochia*, *Dianthus deltoides*, and *Festuca heterophylla*. The last four species, more or less naturalized in Oxfordshire, are either not recorded or recorded only on unsafe authority for Berkshire. A few local plants are more plentiful in Oxfordshire than in Berkshire; among them are *Helleborus foetidus*, *H. viridis*, and *Colchicum*, which are not only more frequent, but have a wider distribution in Oxfordshire than in Berkshire. *Pyrola minor*, which is widely distributed in the woods of the Oxfordshire Chilterns, appears to be absent from similar woods on the Berkshire side of the Thames, though it is found in two localities on the Bagshot Sands in the latter county.

The Berkshire flora, as will have been seen by the enumeration already given, is larger than that of Oxfordshire, the extensive heaths and bogs of the former county affording a home for many additional species. To this category belong *Ranunculus Lenormandi*, *Sagina subulata*, *Drosera rotundifolia*, *D. longifolia*, *Arnoseris*, *Hypochaeris glabra*, *Gentiana Pneumonanthe*, *Myosotis repens*, *Illecebrum verticillatum*, *Myrica Gale*, *Narthecium ossifragum*, *Scirpus caespitosa*, *Carex elongata*, *C. elata*, *C. laevigata*, *Agrostis setacea*, *Osmunda*, *Phegopteris polypodioides*, *Pilularia globulifera*, and *Lycopodium inundatum*, which are not known to occur in Oxfordshire.

The saline meadow near Marcham yields *Buda media*, *Juncus Gerardi*, *Scirpus maritimus*, *Zannichellia pedicellata*, and *Tolypella glomerata*, which are also unrecorded for Oxfordshire. The Berkshire plants *Tunica prolifera*, *Stellaria umbrosa*, *Fumaria muralis*, *Elatine hexandra*, *E. Hydropiper*, *Impatiens biflora*, *Myriophyllum alternifolium*, *Epilobium lanceolatum*, *Galium sylvestre*, *Cervicina* (*Wahlenbergia*) *hederacea*, *Utricularia major*, *U. minor*, *Verbascum Lychnitis*, *Erigeron canadense*, *Polygonum dumetorum*, *Crocus vernus*, *Ornithogalum pyrenaicum*, *Allium oleraceum*, *Potamogeton fluitans*, *P. obtusifolius*, *P. coloratus*, *Carex Boenninghausiana*, *Apera Spica-venti*, *Poa Chaixii*, and *Nitella translucens*, besides *Rubus nessensis*, *R. fissus*, *R. sulcatus*, *R. Colemanii*, *R. lentiginosus*, *R. mercicus*, *R. Questierii*, and other brambles, have not been recorded for Oxfordshire. To the above lists may be added the following species which the author has not been able to find in Oxfordshire:—*Anemone Pulsatilla*, *Ranunculus sardous*, *Dianthus Armeria*, *Viola palustris*, *Trifolium subterraneum*, *Trigonella purpurascens*, *Potentilla argentea*, *Carduus pycnocephalus*, *Pulicaria vulgaris*, *Gentiana campestris*, *Echinodorus ranunculoides*, *Carex strigosa*, *Juncus squarrosus*, *Salix repens*, *Equisetum sylvaticum* (*Rhynchospora alba*, now extinct in Oxfordshire), *Cerastium quaternellum*, *Dryopteris montana*, *Herminium*, and *Orobanche Rapum-genistae*.

There are several species which are extremely rare in Oxfordshire, being confined to a few localities, but have a much wider range and are much more abundant in Berkshire; among these are the ericet al plants *Vaccinium Myrtillus*, *Erica cinerea*, *E. Tetralix*, *Calluna*, *Scutellaria minor*, *Centunculus*, *Milegrana*, *Scirpus fluitans*, *Viola lactea*, *Anthemis nobilis*, *Solidago Virgaurea*, *Juncus squarrosus*, *Salix repens*, *Cerastium quaternellum*, *Plantago Coronopus*, *Rhamnus Frangula*, *Genista anglica*, *Nardus stricta*, and *Potamogeton polygonifolius*. *Orchis ustulata*, *Polygonatum multiflorum*, and *Anemone Pulsatilla* belong to the chalk vegetation and are extremely rare in Oxfordshire; in Berkshire the first and last are local, but the Solomon's Seal is widely distributed in the woods of the centre and south. *Leucosium aestivum* is an example of a river-side plant which is more frequent in Berkshire, while *Oenanthe crocata*, which is absent from the greater part of Oxfordshire, being limited to a few stations near Reading, is very abundant by streams in Berkshire south of the Kennet. *Dipsacus pilosus* also is rather more frequent in Berkshire. *Mercurialis annua*, a rare casual in Oxfordshire, is a common garden weed near Bisham in Berkshire, and *Antirrhinum Orontium* is a frequent plant of cultivated soils in the Kennet and Loddon districts of Berkshire, but only occurs in Oxfordshire near Reading.

Comparing the flora of Berkshire with that of Buckinghamshire, it will be found that Buckinghamshire has a few plants recorded for it which are not natives of Berkshire; among these are *Carum Bulbo-*

castanum, *Cardamine bulbifera* (*Dentaria*), *Phegopteris calcarea*, *P. Dryopteris*, *Peucedanum palustre*, *Carex montana*, *Salvia pratensis*, and *Buxus*.

Besides the foregoing there are some others which require confirmation; such are *Chrysosplenium alternifolium*, *Melampyrum cristatum*, *Filago gallica*, *Aceras anthropophora*, *Utricularia intermedia*, *Orchis purpurea*, and *Campanula patula*, none of which can be considered native of Berkshire.

The flora of Buckinghamshire is only imperfectly known, so that Berkshire has a very large number of plants not at present recorded for Buckinghamshire; but it is probable that the flora of the latter county is numerically smaller than that of Berkshire.

The flora of Berkshire when compared with that of Surrey will be found to be rather poorer in the number of its recorded species. The principal species which are on record for Surrey, but which hitherto have not been found by me in Berkshire, are *Barbarea stricta*, *Cardamine impatiens*, *C. bulbifera* (*Dentaria*), *Coronopus didyma*, *Cerastium pumilum*, *C. tetrandrum*, *Linum angustifolium*, *Trifolium glomeratum*, *Lathyrus hirsutus*, *Chrysosplenium alternifolium*, *Epilobium Lamyi*, *Bupleurum falcatum* and *B. tenuissimum* (? native), *Senecio viscosus*, *Centaurea Calcitrapa*, *Lactuca Scariola*, *Phyteuma orbiculare*, *Campanula latifolia*, *C. patula* (casual in Berks), *Oxyccoccus*, *Cynoglossum montanum*, *Symphytum tuberosum* (? native), *Pulmonaria angustifolia* (? native), *Orobanche Picridis*, *Mentha rotundifolia*, *Teucrium Botrys*, *Chenopodium glaucum*, *Rumex limosus*, *Buxus*, *Malaxis*, *Cephalanthera ensifolia*, *Orchis purpurea*, *Aceras*, *Scilla autumnalis* (? still existing), *Sparganium affine* (*S. natans*, auct. var.), *Potamogeton gramineum*, *P. nitens*, *P. decipiens*, *P. Zizii*, *P. acutifolius*, *P. trichoides*, *Cyperus fuscus* (? native), *Scirpus Tabernaemontani*, *S. carinatus*, *S. triquetus*, *Eriophorum vaginatum*, *E. gracile*, *Rhynchospora fusca*, *Carex diandra*, *C. depauperata*, *C. flava*, var. *cyperoides*, *C. filiformis*, *Homalocenchrus*, *Gastroidium*, *Deschampsia discolor* (*setacea*), *Bromus madritensis*, *Equisetum litorale*, *E. hyemale*, *Chara aspera*, and *Nitella gracilis*.

In addition to this somewhat lengthy list, Surrey is credited with the following plants, which appear to require confirmation:—*Trifolium ochroleucum*, *Ophrys aranifera*, and *Calamagrostis lanceolata*.

Berkshire possesses a few species which are not, so far as the author knows, found in Surrey; among these are *Anemone Pulsatilla*, *Tunica prolifera*, *Astragalus danicus*, *Geum rivale*, *G. intermedium* (a hybrid), *Senecio squalidus*, *Carduus pycnocephalus*, *Onicis eriophorus*, *Gentiana germanica*, *G. campestris*, *Linaria repens*, *Pinguicula vulgaris*, *Mentha cardiaca*, *Teucrium Scordium*, *Illecebrum verticillatum*, *Leucogonum aestivum*, *Ornithogalum pyrenaicum*, *Potamogeton coloratus*, *Zannichellia pedunculata*, *Eleocharis uniglumis*, *Carex elata* (*stricta*), *C. distans*, *Poa Chaixii*, *Phegopteris polypodioides*, *Tolypella prolifera*, *T. intricata*, and *Nitella mucronata*.

In comparing the flora of Berkshire with that of its bordering county of Hampshire, I omit the plants peculiar to the Isle of Wight, and also maritime species. The chief plants of the mainland of Hampshire which are not on authentic record for Berkshire are *Ranunculus tripartitus*, *Viola persicæfolia*, *Silene nutans* (casual in Berks), *Cerastium pumilum*, *Linum angustifolium*, *Trifolium glomeratum*, *Vicia Orobus*, *Lathyrus palustris*, *Tilia parvifolia* (*T. cordata*), *Pyrus scandica* (*P. rotundifolia*, var. *decipiens*), *Chrysosplenium alternifolium*, *Tillæa muscosa*, *Drosera anglica*, *Ludwigia apetala* (*L. palustris*), *Oenanthe pimpinelloides*, *Senecio viscosus*, *Centaurea Calcitrapa*, *Phyteuma orbiculare*, *Campanula patula* (casual in Berkshire), *Oxycoccus*, *Microcala*, *Pulmonaria angustifolia*, *Bartsia viscosa*, *Utricularia intermedia*, *Pinguicula lusitanica*, *Mentha rotundifolia*, *Melittis Melissophyllum*, *Stachys germanica*, *Herniaria hirsuta* (? colonist), *Malaxis*, *Gyrostachis* (*Spiranthes*) *aestivalis*, *Gladiolus*, *Polygonatum officinale*, *Sparganium minimum*, *Potamogeton gramineum*, *P. decipiens*, *Cyperus fuscus*, *Eriophorum vaginatum*, *E. gracile*, *Rhynchospora fusca*, *Cladium*, *Carex diandra* (*teretiuscula*), *C. limosa*, *C. humilis*, *C. montana*, *C. flava*, var. *cyperoides*, *C. filiformis*, *Homalocenchrus* (*Leersia*), *Gastridium*, *Deschampsia discolor* (*setacea*), *Bromus madritensis*, *Lycopodium alpinum*, *Chara connivens*, and *C. aspera*.

The following plants, which are recorded in Mr. Townsend's *Flora of Hampshire*, appear to me to require additional evidence before they can be admitted as native plants of the mainland, namely, *Ranunculus ophioglossifolius*, *Melampyrum cristatum*, *Mentha pratensis*, and *Aceras anthropophora*.

The following plants are omitted from comparison from the fact of their usually occurring near the sea, although occasionally found inland:—*Coronopus didyma*, *Cerastium tetrandrum*, *Trifolium suffocatum*, *Lotus hispidus*, *Rubia*, *Scirpus nanus*, *S. cernuus*, *Carex punctata*, *Cyperus longus*, and *Scirpus Tabernaemontani*.

Berkshire therefore lacks many plants possessed by Hampshire, but many of these are confined to the New Forest. The southern chalk downs afford a few species which do not occur, or at any rate have not been noticed, on the Berkshire downs; for instance, *Phyteuma orbiculare*, *Carex humilis*, *Polygala oxyptera*; but these may yet be found. The boggy and heathy district round Fleet Pond and the water itself afford several plants which are wanting in Berkshire.

There are reported for Berkshire, on the other hand, several species which are unrecorded for the larger county. The chief of these are *Anemone Pulsatilla*, *Sisymbrium Sophia*, *Roripa sylvestris* (*Nasturtium*), *Erophila præcox*, *Elatine Hydropiper*, *Geranium rotundifolium*, *Astragalus danicus*, *Callitriche polymorpha*, *Crepis biennis*, *C. taraxacifolia*, *C. foetida*, *Pimpinella major*, *Rosa agrestis* (*sepium*), *R. glauca*, *Villarsia*, *Verbascum Lychnitis*, *Mentha piperita*, *Teucrium Scordium* (?), *Galeopsis speciosa*, *Calamintha* (*Nepeta*)

parvifolia, *Rumex maritimus*, *Illecebrum verticillatum*, *Orchis militaris*, *O. Simia* (?), *Leucosium aestivum*, *Valerianella carinata*, *Senecio squalidus*, *Chenopodium opulifolium*, *Ornithogalum pyrenaicum*, *Gagea*, *Potamogeton coloratus*, *P. (zosterifolius) compressum*, *P. praelongus*, *P. fluitans*, *Zannichellia pedunculata*, *Carex Boenninghausiana*, *C. elata (stricta)*, *Alopecurus fulvus*, *Festuca rubra*, var. *fallax*, *Bromus interruptus*, *Poa Chaixii*, *Nitella mucronata*, *Tolypella intricata*, *T. glomerata*, and *T. prolifera*.

Compared with the flora of Berkshire, the flora of Wiltshire will be found to be considerably poorer in the number of recorded species, but Wiltshire has several plants which are not on authoritative record for Berkshire; the chief of these are *Ranunculus tripartitus*, *Cerastium pumilum*, *Thlaspi perfoliatum* (a casual in Berkshire), *Linum angustifolium*, *Chrysosplenium alternifolium*, *Cnicus tuberosus*, *Phyteuma orbiculare*, *Campanula latifolia*, *C. patula* (casual in Berkshire), *Orobanche Hederae*, *Pinguicula lusitanica*, *Mentha rotundifolia*, *M. pratensis*, *Melittis Melissophyllum*, *Asarum*, *Cephalanthera ensifolia*, *Ophrys aranifera*, *Polygonatum officinale*, *Potamogeton gramineum*, *Cyperus longus*, *Scirpus Tabernaemontani*, *Carex digitata*, *C. tomentosa*, *Bromus madritensis*, *Phegopteris calcarea*, *Cardamine impatiens*, *Coronopus didymus*, *Oenanthe pimpinelloides*, *Eriophorum vaginatum*, *Carex diandra (teretiusecula)*, *C. humilis*, and *Festuca sylvatica*.

Of these, *Cardamine impatiens*, *Carex diandra (teretiusecula)*, *Eriophorum vaginatum*, *Potamogeton (heterophyllum) gramineum*, *Mentha pratensis*, and *Festuca sylvatica* require further confirmation.

Berkshire has upwards of eighty species which are not recorded for Wiltshire.

East Gloucestershire has several species which are either not recorded for, or are extinct in, Berkshire; among these are *Vicia Orobus*, *Rubus saxatilis*, *Oenanthe pimpinelloides*, *Mentha pubescens* (auct. angl.), *Cephalanthera rubra*, *C. ensifolia*, *Polygonatum officinale*, *Carex digitata*, *Lycopodium alpinum*, var. *decipiens* (*L. complanatum*, var. *fallax*), *Carex tomentosa*, *Ranunculus ophioglossifolius* (now extinct), *Thlaspi perfoliatum* (a casual in Berkshire), *Cerastium pumilum*, *Chrysosplenium alternifolium*, *Epilobium Lamyi* (?), *Campanula latifolia*, *Cynoglossum montanum*, *Mentha rotundifolia*, *Cystopteris fragilis*, and *Phegopteris calcarea*.

East Gloucestershire is also credited with *Linum angustifolium*, *Prunus Padus*, *Melica nutans*, *Eriophorum vaginatum*, and *Orobanche Hederae*; but these appear to need confirmation.

The flora of the vice-county of East Gloucestershire is but imperfectly known, so that Berkshire possesses a very large number of plants which are not recorded for it. Several of the Berkshire species are not likely to occur in Gloucestershire.

THE FOLLOWING PLANTS SHOULD BE LOOKED FOR AS
THEY MAY POSSIBLY BE FOUND IN BERKSHIRE.

<i>Ranunculus intermedius.</i>	<i>P. trichoides.</i>
<i>Cardamine bulbifera.</i>	<i>Horkelia arrhiza.</i>
<i>Cerastium pumilum.</i>	<i>Eriophorum gracile.</i>
<i>Epilobium Lamyi.</i>	<i>Carex tomentosa.</i>
<i>Tillaea muscosa.</i>	<i>C. humilis.</i>
<i>Campanula latifolia.</i>	<i>C. montana.</i>
<i>C. patula</i> (native).	<i>C. filiformis.</i>
<i>Scrophularia alata.</i>	<i>C. diandra.</i>
<i>Mentha rotundifolia.</i>	<i>Homalocenchrus.</i>
<i>M. rubra</i> (requires verification).	<i>Gastridium.</i>
<i>Stachys germanica.</i>	<i>Phegopteris Dryopteris.</i>
<i>Acera anthropophora.</i>	<i>P. calcarea.</i>
<i>Polygonatum officinale.</i>	<i>Equisetum litorale.</i>
<i>Potamogeton gramineum.</i>	<i>Chara aspera.</i>
<i>P. decipiens.</i>	<i>C. obtusa.</i>
<i>P. Zizii.</i>	

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Synonyms are in italics. Genera with * prefixed are probably not native in the county. Genera with this sign † prefixed are not known to occur in Berkshire.

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